

# CU consumer reports

August 1947

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220 Brands



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PUBLISHED MONTHLY BY CONSUMERS UNION

YOUR HEALTH • YOUR HOME • YOUR CAR  
BREAD & BUTTER • GOVERNMENT ACTS  
MOVIE POLL • RECORDS • GARDENING



"I heard it for a fact . . ."

"This salesman said . . ."

"Don't tell **ME**

**those ratings aren't paid for?"**

"I happen to know . . ."

"According to this fellow . . ."

ALMOST every reader of Consumers Union has encountered a storekeeper or a clerk or somebody who *knew* as incontrovertible *fact* that CU's "Best Buy" ratings are paid for or that some manufacturer got a "Not Acceptable" rating because he refused to pay. By now we are familiar enough with this sort of cynicism to know that most of the people who say such things do not say them out of malice. They say them partly because the whole concept of a consumer testing organization is still so new as to be unfamiliar to them; partly because the excesses and deceptions of much advertising have made them suspicious of almost any product information; and partly because, in this racket-ridden age, it seems to them incredible that good ratings would go to the good products rather than to the highest bidders.

These people generally mean no harm. But serious harm to Consumers Union can result from the irresponsibility of these people. So let us state the facts for the record, and then let us enlist the help of CU subscribers in keeping the record straight.

❑ Consumers Union has never received any remuneration of any nature whatever for rating or for not rating any product or for giving any product a good rating or a bad one.

❑ Every rating that has ever been made by Consumers Union has been determined by tests, examination or use, or by the unbiased opinions of qualified authorities, and in no other ways.

❑ Consumers Union accepts no gifts of samples from manufacturers (it returns them when they are sent, as they sometimes are) and it will not sell copies of its Reports to manufacturers or distributors for promotion use.

Such are the facts. And now a request to CU subscribers: if you ever hear anyone say that he knows that some CU rating has been influenced in any way by any special interest, please ask him to write down what he says and sign his name to it; and then please send the document on to us.

Consumers Union takes full responsibility for the integrity of its work. We think it is fair to ask anyone who impugns that integrity to assume responsibility for doing so—and the consequences thereof, too.

*This is one of a series of statements clarifying the work and purposes of Consumers Union. Others will appear from time to time in this same space.*



## Letters

### Dear CU:

The last issue was a gift from heaven and it came just at the right moment — cameras, weed killers and electric food mixers were uppermost in my mind and they were all carried. Cameras were of *paramount* importance as I wanted to get just the right one for my daughter's graduation present . . .

### Dear CU:

This is comment on the election to fill vacancies on the Board of Directors. . . .

After reading the biographies of the men nominated we realized all were leaders in their profession, well-known and respected in all fields of endeavor. BUT the men named were without exception from and of *one* locality in the entire nation! One state, in fact. The problems of every state vary more or less and the experience and viewpoint gained in one state may not necessarily apply in another state. . . .

### Dear CU:

Out of a Board of Directors of six, the present Board has nominated three doctors — why? In a Consumers Union is it that important to have half the board physicians? Not unless you expect to go all out on your medical department. Personally, I think you are going medical slap-happy. . . .

On the various new departments I can say you're doing a good job. Just keep the medical from going haywire. . . .

### Dear CU:

I would like to see some representation of business men or manufacturers on the board. At present it seems to be composed of lawyers, doctors and people with no knowledge of production. How would lawyers like it if a group of laymen took it upon themselves to delve into legal problems?

☞ The Board is made up of 18 Directors, six of whose terms had expired. At present there are a general practitioner, a dentist and a psychiatrist on the Board.

In addition to doctors and lawyers, there are engineers, physicists, ac-

countants and economists. The by-laws state that "No one having a financial interest in the production or distribution of any consumer goods is eligible to serve on the Board."

Three members of CU's present Board of Directors are neither in nor from New York. The makeup of the Board changes from year to year, but it is natural that a majority of Directors will come from New York, as the office is there, and meetings are usually held there. Recognition of national needs and a broad point of view result from CU's having some 200 consultants working in all parts of the country, and having the benefit of advice from a National Advisory Committee of some 40 members in 19 states, from East to West. In addition, CU's shoppers are scattered in 24 cities.

### Dear CU:

Just a line to say that "Notes on the New Records" is a very fine addition to the *Reports*, and I hope it will be continued as a regular feature.

### Dear CU:

You have saved me the cost and annoyance of a very expensive mistake. . . .

I believe your reports because I think they are impersonal, factual, and every time I have digressed, I have regretted it. . . .

Thank you for the hundreds of times you have contributed to my economy, my health and my education.

### Dear CU:

CU has been my economic prayer book for ten years. Its greatest contribution to me has been its help in evaluating whatever I buy for the satisfaction of material needs. A vacuum cleaner can never again be anything except a machine to pick up dirt and debris. In short, it has freed me from "gadgetitis."

## consumer reports

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Product ratings represent the best judgment of staff technicians or of consultants in university, government, and private laboratories. Test samples are purchased on the open market by CU's shoppers. Ratings are based on laboratory tests, controlled use tests, authoritative opinion, experience of a large number of persons, or a combination of these factors. Interpretation even of test findings is a matter on which expert opinion may differ. It is CU's pledge that opinions affecting its ratings shall be as free from bias as it is possible to make them.

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## Use Your Guide



CU's *Buying Guide* is no bookshelf ornament. Make it work. In this space we will remind you now and then of timely material in your 1947 *Guide*.

► For the dog days of August, check your *Buying Guide* for information about —

MOSQUITO CONTROL.....	page 242
PERSPIRATION SUPPRESSORS.....	page 200
SOFT DRINKS.....	page 188
GELATIN DESSERTS.....	page 100
THERMOMETERS.....	page 316
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## Reports in Progress

Work on the following reports, among others, is now under way. They will appear in forthcoming issues:

- electric irons
  - grapefruit juice
  - electric blankets
  - water softeners
- breakfast cereals
  - pancake, biscuit flours
  - television receivers
  - portable electric heaters
- film developing tanks
  - automatic washing machines
  - portable washing machines
  - automobile seat covers

★ SEE PAGE 322 FOR CUMULATIVE INDEX OF 1947 CONSUMER REPORTS TO DATE

The old saying, "Spare the rod and spoil the child," applies to many companies which have been brought to court for selling adulterated food and drugs, and to many which have been guilty of false and misleading claims, or caught packaging in deceptive containers. Many "big names" are repeat offenders.

A review of criminal cases against manufacturers shows that all too often the punishment does not fit the crime; fines for the same offense vary widely depending on the judge and the court.

In 1944, for example, three separate cases involving the Safeway Stores were tried, in three different courts, in three different states. All involved the sale of adulterated bread — *Julia Lee Wrights Enriched White*.

In Washington, the judge fined the Company \$15 on each of four counts; in Idaho, \$50 on the first count, and \$25 on each of two remaining counts; and in Colorado, \$100 on each of five counts.

The consumer's reaction may well be, "Why doesn't the Government give these companies a stiff fine so they won't repeat the offense?" The answer, in part, is that the Food & Drug Administration itself does not levy the fines. It brings the alleged offense to the attention of the Department of Justice, which prosecutes in a Federal Court. If the defendant is found guilty, the judge may levy a fine at his own discretion. He is limited only by the maximum of \$1000 per count for a first offense. If the defendant is an individual rather than a corporation, a fine of \$1000 and one year in prison per count is the maximum. For repeated offenses, the maximum is \$10,000 per count, or three years' imprisonment, or both.

During 1946, of 350 criminal prosecutions instituted, only 51 fines of \$1000 or more were levied. In many instances, these were not maximum fines as they covered more than one count. During the year, jail sentences were imposed on a total of only 14 defendants, five of whom received suspended sentences. The other nine were sentenced to from one day to nine months.

► The following developments have been reported in actions taken by the Federal Trade Commission and the Food & Drug Administration against various companies and products.

### McGregor sweaters and sportswear

On May 1, FTC ordered David D. Doniger & Co. to stop misbranding wearing apparel in violation of the Wool Products Labeling Act, and to stop misrepresenting the country of origin. FTC Order 5157 alleged that *McGregor Brand* garments, were not properly labeled to show they were not all wool.

Under the law, garments containing wool must be tagged, labeled, or stamped to show the kinds and percentages of the different

fibers, including the respective percentages of wool, reprocessed wool or reused wool, and the percentage of nonfibrous loading, filling, or other adulterating matter.

Under the FTC Order, David D. Doniger & Co. is prohibited from placing on the required labels, the statement, "Detach for Stock Control," or any other statements suggesting that the labels be removed before sale to consumers, and is prohibited from using such terms as *Yorkshire Quad*, *Shellane*, *Scotchshire*, *Ryder Vest Scot*, or any other term indicating that the products were made in the British Isles.

## ...for the PEOPLE

### Sta-Dri

Classic Products Corp., manufacturer of *Sta-Dri*, a "water-repellent preparation," has agreed to an FTC order to stop representing that fabrics to which *Sta-Dri* is applied are made waterproof.

### Parke, Davis & Co.

Almost 209,000 packages of adhesive absorbent gauze shipped by Parke, Davis & Co. from Bridgeport, Conn., to California were found to be contaminated with living micro-organisms. The label stated that the gauze was "sterilized," but F&DA claimed this statement was false and misleading. Parke, Davis & Co. admitted that the gauze was not sterile, and the product was ordered released under bond to be reprocessed or otherwise disposed of under the supervision of the Federal Security Agency.

### Borden Co.

The Borden Co. was fined \$350 and the plant manager and superintendent of the ice cream department in the company's El Paso plant were each fined \$75 for manufacturing and shipping filthy ice cream to New Mexico. F&DA charged that the ice cream had been prepared, packed, or held under unsanitary conditions. It contained fly and cockroach fragments, cockroach excreta, rodent hairs, and feather barbules.

### Mennen Co.

A shipment of *Mennen Antiseptic Oil*, widely advertised for use on babies, was found by F&DA to be adulterated. The label stated that the oil was "Germicidal; Self Sterilizing . . . has greater antiseptic and germicidal powers than the commonly used ammoniated mercury ointments . . . helps sterilize . . . the diaper area. . . . Meets the widespread demand of hospital physicians, nurses, and mothers . . . Mennen Antiseptic Oil aids in keeping the skin of . . . babies free from pyogenic organisms."

The Government stated that the antiseptic strength of the oil was different from that claimed by the manufacturer and that

Continued on page 314

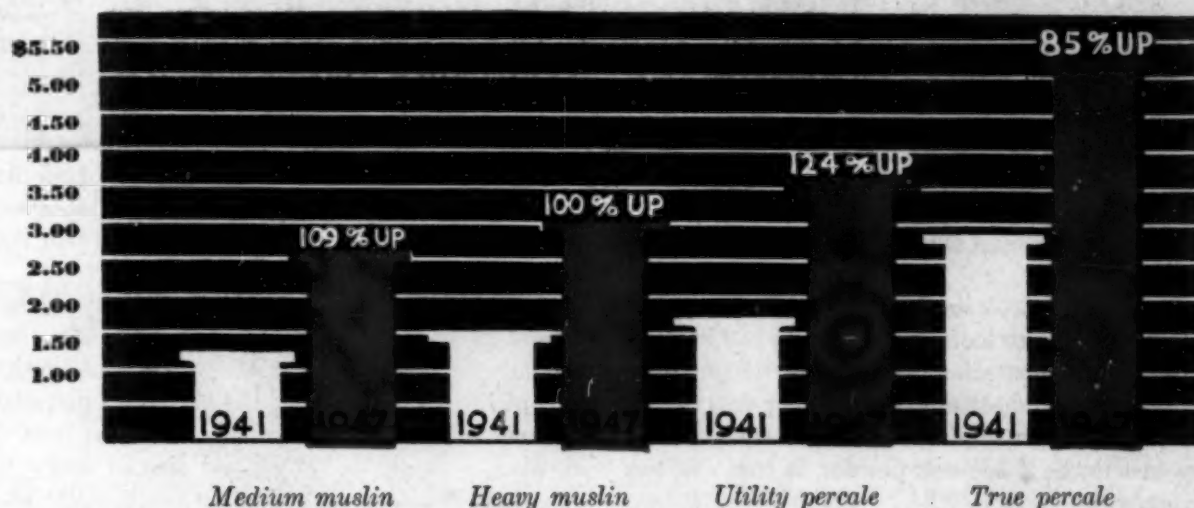


# SHEETS

Wise buying and careful use are in order:

today you pay for medium muslin what you used to pay for percale

Price changes in 25 brands tested by CU in both 1941 and 1947



Sheets are not yet plentiful. Only 32 brands were found by CU's shoppers, as compared with 53 which were available in 1941, when CU's last sheet tests were made. Of the 32, 25 brands were included also in the 1941 tests. The abrasion resistance of a good many of the sheets in this group has improved, with other properties about the same as in 1946.

But their price, as was to be expected, has gone way up. In 1941 you could buy type 128 (medium muslin) sheets for an average price of \$1.23. Today the same sheets cost about \$2.57, a 109% increase. In 1941, type 140 (heavy muslin) sheets sold for \$1.50. Today they cost \$3.00, a 100% increase. The type 180 (utility percale) sheets could be bought in 1941 for an average price of \$1.63; today they cost \$3.65, an increase of 124%. And type 200 (true percale), a luxury item never covered by OPA, went from \$2.84 to \$5.24, an increase of 85%. In other words, you pay as much today for medium muslin sheets as you used to pay for the best percale.

Cu's tests turned up no outstanding brands, but neither did they disclose any that were poor enough to be rated "Not Acceptable."

Choosing between muslin and percale is largely a choice between durability on the one hand, and appearance and feel on the other — a choice that must be governed by your own circumstances and preference. Muslin sheets wear better and cost less; percale sheets look and feel better, and cost more initially. If, however, you pay for laundry by weight, the percales cost less to launder. An 81x108-inch muslin sheet weighs about six ounces more than a percale sheet of the same size. Therefore, if you pay 15¢ a pound for laundry, laundering muslin costs about 5½¢ per sheet more than percale. At today's sheet prices, about twelve launderings would make up the initial price difference between the type 140 muslin and the type 180 percale. If you launder at home, the lighter percales will naturally be easier to handle.

## Look for these things

All sheets, muslin or percale, should meet the following requirements:

1. The weave should be well-balanced. Hold the sheet up to the light. There should be approximately the same number of threads in each direction. It would be nice,

## SHEET SIZES

Type of bed	Mattress width	Sheet size
Cot (thin mattress)	36"	54x108
Cot (normal mattress)	36"	63x108
King's bed	42"	63x108
Queen-quarter bed	48"	72x108
Double bed	54"	81x108*
Extra-wide bed		90x108
Crib	30"	50x72

\* If mattress is inner spring or extra high, use size 90x108.

## DON'T

Use sheets as a laundry bag . . . Soak sheets for too long; this sets the dirt . . . Use hot water; this sets the stains . . . Rub sheets on a washboard; when laundering by hand just force suds through by alternately soaking and squeezing . . . Use too much bleaching solution, and not for too long a time . . . Allow drying sheets to flap in wind or freeze in cold weather . . . Iron sheets along the fold lines . . . Store damp sheets; they'll develop mildew

## DO

Use sheets in rotation; continuous use of the same sheet does not distribute wear . . . Use a mattress pad to protect sheet against abrasion . . . Use a spring cover to keep sheets from catching . . . Mend before laundering and before a tear becomes too large . . . Wash sheets as soon as possible after removing from bed . . . Loosen edges of sheet before removing from bed.

of course, if you could know the exact thread count, but most labels give only the total number of threads in both warp and filling, and this corresponds to the type number.

2. A sheet should not look sleazy. But a low-count, lightweight sheet is likely to look that way, and to hide this appearance, it may contain a good deal of sizing. After one washing, such a sheet emerges looking very much like cheesecloth. When buying sheets rub some of the fabric against itself; if it sheds powder, it contains too much sizing.

A sheet's weight should reflect the cotton, not the sizing. In CU's tests, differences in weight before washing were found to be small within types, and the difference between the lightest and the heaviest sheet tested was about one-half pound.

3. A sheet should be free of imperfections. If not, it should be marked "second" or "run-of-the-mill" and sell for a lower price. A "second" with a minor imperfection which will not impair durability, may be a good buy if sold at a lower price. But sheets with many knots, long floating yarns, holes or tears are never good buys. Of the 32 sheets tested by CU, three had imperfections which would make them "seconds." The fact that they were not so marked probably stems from a general decline in inspection control during the war years.

4. Selvages should be liberal and well-made to allow for the hard wear sheet edges receive. There should be

a strip on each side of the sheet at least one-fourth inch wide, in which the warp yarns are more numerous than in the rest of the sheet. A "tape" weave in this strip adds to its durability.

5. Hems should be even, and carefully turned and closed at the ends. Stitching should be fine, and the threads securely fastened. If the edges of the hem are not parallel to the weave, the sheet will distort during shrinkage in washing. Hemstitched hems wear poorly.

6. Sheets should be of proper size in order to give adequate tuck-in, and to wear well. After shrinkage (most sheets shrink two to six inches in each direction) sheets should be about 20 inches longer and wider than the mattress on which they are used (see chart).

7. All colored sheets should be guaranteed against fading and running in laundering. This is especially true of white sheets with colored hems. Don't rely on the salesman's word for this — get the guarantee in writing, or on the label.

## How CU tested

All sheets were tested for thread count, tensile strength, weight, and resistance to abrasion. Shrinkage during washing was also determined. All were examined for defects and measured for size. Hems were examined for proper folding and stitching. Because sheets are relatively uniform within a brand, only one sheet in each brand was purchased for test.

## Ratings of sheets

### Muslin sheets

► The ratings that follow are listed in order of decreasing over-all quality.

#### acceptable

■ — DWIGHT ANCHOR Type 140 (Nashua Mfg. Co., Nashua, N. H.). \$3.49. 90 x 108.

■ — TRADE WINDS Type 140 (Nashua Mfg. Co.). \$2.98. 81 x 108.

■ — PEPPERELL Type 140 (Pepperell Mfg. Co., NYC). \$2.98. 81 x 108.

■ — DAN RIVER'S VIRGINIA MANOR Type 140 (Dan River Mills, Inc., Danville, Va.). \$3.39. 90 x 108.

■ — VANDERVOORT'S PREMIER Type 140 (Seruggs-Vandervoort's-Barney, St. Louis). \$2.95. 81 x 108.

■ — GIMBELS OWN GRAMERCY Type 140 (Gimbel Bros., NYC). \$2.98. 81 x 108.

■ — MACY'S MAYFLOWER Type 140 (R. H. Macy & Co., NYC). \$2.88. 81 x 112½.

■ — PACIFIC Type 140 (Pacific Mills, NYC). \$3.25. 90 x 108.

■ — PEQUOT Type 140 (Pequot Mills, Salem, Mass.). \$3.25. 90 x 108.



■ — CANNON Type 128 (Cannon Mills, NYC). \$2.89. 90 x 108.

■ — THOMASTON PAGE Type 140 (Thomaston Mills, Thomaston, Ga.). \$2.93. 81 x 108.

■ — AMBASSADOR Type 140 (Associated Merchandising Corp.). \$3.19. 81 x 108.

■ — FIELDCREST GOLDEN GATE Type 140 (Marshall Field & Co., Chicago). \$3.45. 90 x 108.

■ — UTICA Type 140 (Utica & Mohawk Cotton Mills, Inc., Utica, N. Y.). \$3.25. 90 x 108.

■ — CONSUL Type 128 (Associated Merchandising Corp.). \$2.38. 72 x 108.

■ — WARD'S LONGWEAR Type 128 Cat. No. — 3258 (Montgomery Ward). \$2.45 plus postage. 81 x 108.

■ — PACIFIC TRUTH Type 128 (Pacific Mills). \$2.63. 90 x 108.

■ — PEPPERELL Type 128 (Pepperell Mfg. Co.). \$2.59. 81 x 108.

■ — BULLOCK'S "SLEEPER" Type 128 (Bullock's, Los Angeles). \$2.95. 90 x 108.

■ — GIMBELS OWN GREELEY Type 128 (Gimbel Bros.). \$2.39. 81 x 99.

### **Percalé sheets**

► The ratings that follow are listed in order of decreasing over-all quality.

#### **acceptable**

■ — UTICA Type 200 (Utica & Mohawk Cotton Mills, Inc., Utica, N. Y.). \$5.68. 90 x 108.

■ — PEPPERELL Type 200 (Pepperell Mfg. Co.). \$5.64. 90 x 108.

■ — SUPRE-MACY Type 200 (R. H. Macy & Co., NYC). \$5.17. 90 x 108.

■ — WAMSUTTA SUPERCALÉ Type 200 (Wamsutta Mills, New Bedford, Mass.). \$6.80. 90 x 108.

■ — FIELDCREST DURACALÉ Type 180 (Marshall Field & Co., Chicago). \$3.50. 81 x 108.

■ — INDIAN MAIDEN Type 180 (Nashua Mfg. Co., Nashua, N. H.). \$4.32. 90 x 108.

■ — BATES Type 180 (Bates Fabrics, Inc., NYC). \$4.10. 81 x 108.

■ — PENCALÉ Type 180 (J. C. Penney Co., NYC). \$4.59. 90 x 108.

■ — PEPPERELL Type 180 (Pepperell Mfg. Co.). \$3.50. 90 x 108.

■ — CANNON Type 180 (Cannon Mills, NYC). \$3.69. 90 x 108.

■ — PACIFIC Type 180 (Pacific Mills, NYC). \$4.32. 90 x 108.

■ — FILENE'S OWN EMPRESS Type 180 (Filene's, Boston). \$3.25. 90 x 108.



*The pressure valve stuck. The top blew. A technician escaped injury. The cooker and CU's stove were ruined*

### **The late Alca Cooker**

The *Alca Cooker*, manufactured by Alcaware Products Corporation, Mt. Vernon, N. Y., and sold for \$10, is a 4½-quart pressure cooker that did not arrive in time to be included in CU's previous pressure cooker tests (*Reports*, February). It was put through its paces later, and its paces turned out to be pretty wild. What's left of the *Alca Cooker* after a sensational failure in one of CU's tests is visible above.

To begin with, it was a seemingly normal cooker, in which the seal between lid and pot was effected by six slip clamps, engaged by turning a handle on the cooker's cover. The pressure gauge consisted of a

small opening in the lid with a cone-edged piston held in place by a spring. Turning the gauge increased or decreased the pressure of the spring, which, in turn, regulated the pressure within the cooker at 5, 10, 15 and 20 pounds. The safety valve was a rubber or neoprene plug with flanges at top and bottom — a type, incidentally, which CU has found rather objectionable.

Preliminary performance tests were uneventful, except that careful adjustment of the heat was required to keep the pressure steady.

Now, most pressure cooking is done at about 15 pounds or less, and the vent on a pressure cooker normally keeps the pressure down to that level. But in order to test the effectiveness of the safety-valve, CU's test procedure calls for stopping up the vent, and letting pressure build up until the safety valve blows. It is a routine test, but what happened on this occasion proved to the hilt the point and purpose in making it.

Pressure in the *Alca Cooker* passed the 40 point, and the valve did not blow. At 45 pounds it still didn't blow, but the top did. In the resulting explosion, the top hit the ceiling, where the handle was broken off; one slip clamp sheared off completely, the rest were bent out of shape, and pieces of CU's stove not only covered one room of the laboratory but were driven into the woodwork. The technician in charge of the test, fortunately standing behind a shield, was shaken but unhurt. It was noted later that the slip clamps were only 3/32 of an inch thick, compared to the 5/32 of an inch thickness generally used.

CU's rating: "Not Acceptable."

# Electric clocks

Fifteen were "Acceptable"; if they get the right current, they'll keep the right time

Some buzz, some chime, some have no alarm at all; two permit you to wake up to music

Just as a mechanical clock consists essentially of a spring with hands and a dial, so an electric clock consists of a motor with hands and a dial. The motor may offer a certain amount of convenience as compared to a spring, but it has its limitations as well. In the first place, all of the 19 brands of electric clocks tested by CU were designed to operate with 110-volt, 60-cycle a-c. If the current you have is different from that — especially as regards cycles — none of these clocks will work properly.

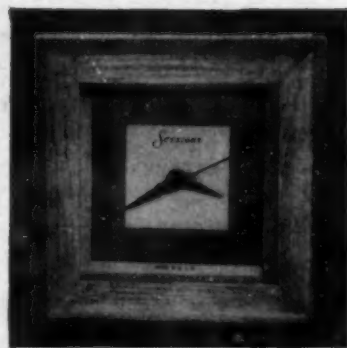
Even if you have the correct current, it is still impossible to be certain that an electric clock will keep time for you accurately. For the clock's accuracy is entirely dependent on the electricity supplied to it. Obviously, if and whenever the electricity stops, so will the clock. Beyond that, the motors in these clocks are of the type known as synchronous, which means that they are dependent on the number of cycles of the electricity supplied them, rather than on voltage; they run in step with the alternations (reversals) in current produced by the generators at the power house.

If the current coming to you is frequency-regulated — that is, if there is a master clock on the generators to keep all clocks connected to the line at the correct time

The Telechron Selector costs \$14.95, can turn on other electric appliances up to 1650 watts by means of switch settings located at 15-minute intervals around face



The \$3.95 Sessions was "Not Acceptable." It was most unstable, poorly made



The Sentinel, also "Not Acceptable," had legible face and alarm dial, but 2 samples broke down during test

— your clock will be accurate while it continues to run. But if the current is not frequency-regulated — as is often the case in rural communities — the clock will be affected by slight variations in current rate, and may lose or gain badly as a result. If you live in a community where the power is not too dependable, therefore, a spring-driven clock is a much safer bet.

## How CU tested

CU tested three general types of electric clocks; those with alarms, those without alarms, and the so-called "switch" clocks — the ones that can be pre-set to turn on other electrical appliances. The differences in price as well as in quality between the alarm and non-alarm clocks were found to be negligible.

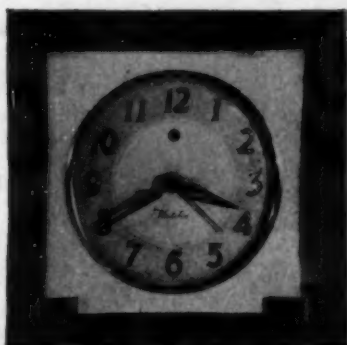
All the alarm clocks tested had electrically-driven alarm mechanisms, except for the *Seth Thomas Pyper*, which had a spring-driven alarm, and was rated "Not Acceptable" for that reason. No outstanding buys turned up during CU's tests; four clocks of equal quality, all within the \$4.95 to \$6.95 price range, head the "Acceptable" list: *General Electric Herald* and *Troubadour*, the *Telechron Telalarm*, and the *Telechron Telalarm Jr.*

The switch clocks have put in their appearance since CU last tested clocks, in 1941. If you like to wake up to music, and it's worth the extra expense to you, you have two such clocks to choose from: the *Telechron Switch Alarm* at \$7.95 and *Telechron Selector* at \$14.95.

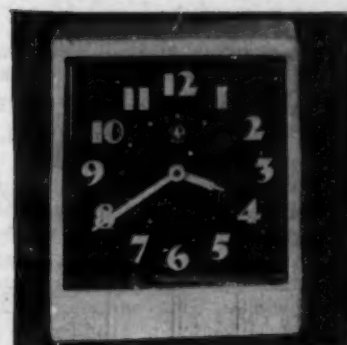
Another type of clock not tested by CU previously is represented by the *Penwood Numechron*, which tells time in numbers, on four dials. The *Penwood* turned out to be one of the poorest clocks tested, and one of the



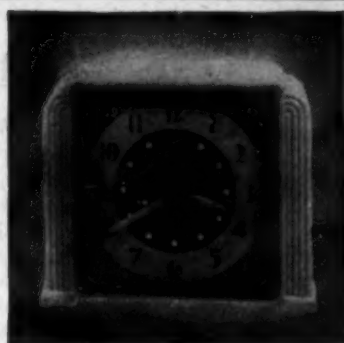
*A lost-time indicator is desirable. The \$6.75 Westclox Logan has a good, clear one at the top of its face*



*The \$5.95 Pyper had a fine, legible face, but faulty spring-wound alarm made clock "Not Acceptable"*



*Alarm dial ought to be in front as in \$7.95 Telechron Switch Alarm. This clock can be preset to turn on radio*



*Luminosity is always an advantage. Luminous dots on \$4.95 Telechron Telalarm Jr. make hours clearly visible in dark*

most expensive. For \$10.95 you not only get the time in numbers, but get an inordinate amount of noise as well. Both samples tested by CU were extremely noisy at best; when the four dials reached the point at which they all had to turn at once, the motor howled, whined, and sometimes gave up altogether.

Many electric clocks are finally discarded because they become noisy. This characteristic could not be investigated, for a life test would take several years to run. Efforts will be made to evaluate noisiness for future ratings.

A desirable feature in an electric clock is a lost-time indicator. Since all clocks had self-starting motors, such an indicator provides the only way to tell whether there has been a current interruption. The indicator consists of a flag which shows red once the current has been interrupted. Clock manufacturers use several methods to reset the flag, all of them satisfactory. The most common is the gravity-type, which necessitates turning the clock upside down. Another involves an automatic resetting mechanism, which operates at the time the hands are turned; this is found on the *General Electric 7H118L* and the *Telechron 7H91L*. A third means is a manual reset knob. The *Seth Thomas Yukon* has such a device.

The presence of a sweep second hand was judged to be an advantage in CU's ratings of the clocks. Other factors considered were legibility of the dial, luminous dial, external construction, stability, and the ease with which time and alarm could be set. The faces of all clocks tested were considered satisfactory as to legibility, although only three had minute divisions: the *Sentinel*, *Telechron Selector*, and *Seth Thomas Pyper*.

All clocks were found to keep time accurately when tested at lower-than-normal voltages, and they all passed CU's tests for shock hazard. Power consumption was determined for all brands, and found to range from 1.8 to 2.3 watts — which means an annual cost of from 63¢ to 81¢ with electricity at 4¢ per kilowatt hour.

Besides being examined for these characteristics, alarm clocks were tested for the ease and accuracy of the alarm setting, and for the intensity and duration of the alarm itself. Only two samples had inaccurate alarm settings — this is something that can and should be checked before purchase. CU felt that the duration of the alarm on all samples was adequate, but it's a good idea to listen as well as to look before you buy, to be sure the sound of the alarm is agreeable (or disagreeable as the case may be) and loud enough.

► Unless otherwise noted, two samples of each clock were tested. Prices do not include the 20% Federal tax. All clocks were 110-volt, 60-cycle a-c.

## Alarm clocks

**acceptable**

► The following four clocks were judged to

be the best of the alarm clocks tested, and of approximately equal quality.

■ — GENERAL ELECTRIC HERALDER 7H160L (General Electric Co., Bridgeport, Conn.). \$5.95. Gravity-type lost-time indicator, sweep second hand. Alarm dial in front, had good divisions and color contrast. Adjustable buzzer-type alarm. Plastic case, glass crystal. Hands and hour-marks luminous. Legi-

ble numerals but no minute divisions. Time and alarm easy to set. Good stability. Three samples tested.

■ — GENERAL ELECTRIC TROUBADOUR 7H-118L (General Electric Co.). \$6.95. Lost-time indicator reset when time is adjusted. Sweep second hand. Alarm dial in front. Loud, ring-type alarm. Plastic case (cracked

on one sample), glass crystal. Hands and numerals luminous. Legible numerals but no minute divisions. Time and alarm easy to set. Good stability; felt pads on legs.

■ — TELECHRON TELALARM 7H91L (Warren Telechron Co., Ashland, Mass.). \$6.95. Lost-time indicator reset when time is adjusted. Sweep second hand. Large alarm dial in front, with good divisions and color contrast. Loud, ring-type alarm. Clear numerals but no minute divisions. Plastic case, glass crystal. Time and alarm easy to set. Fair stability; felt pads on legs.

■ — TELECHRON TELALARM JR. 7H135L (Warren Telechron Co.). \$4.95. (Model no longer being made, but may still be available.) Gravity-type lost-time indicator, sweep second hand. Alarm dial in front, had good divisions and color contrast. Adjustable buzzer-type alarm (adjustment did not operate on one sample tested). Hands and hour marks luminous; fairly legible numerals, but no minute divisions. Plastic case, glass crystal. Time and alarm easy to set. Fair stability.

► The following five models were judged to be next-in-line in quality, and of approximately equal quality within the group.

■ — GENERAL ELECTRIC CHANTILLY 7H154 (General Electric Co.). \$4.95. Gravity-type lost-time indicator, sweep second hand. Small, rotating alarm dial in front with good divisions and contrasting hand. Adjustable, buzzer-type alarm. Plastic case. Good numerals but no minute or hour divisions. Time and alarm easy to set. Fair stability; felt pads on legs. One sample tested.

■ — TELECHRON CONDUCTOR 7H103 (Warren Telechron Co.). \$4.95. (Model no longer made, but some may still be available.) Gravity-type lost-time indicator, sweep second hand. Rotating alarm dial in front; numbers and divisions blended with color of dial. Buzzer-type alarm. Plastic case, glass crystal. Good numerals but no minute or hour divisions. Time and alarm very easy to set. Fair stability; felt pads on legs.

■ — TELECHRON DISPATCHER 7H125 (Warren Telechron Co.). \$4.95. (Model no longer being made, but some may still be available.) Gravity-type lost-time indicator, sweep second hand. Small, rotating alarm dial in front. Buzzer-type alarm. Plastic case, glass crystal. Good numerals but no minute or hour divisions. Time and alarm very easy to set. Good stability; felt pads on legs.

■ — WESTCLOX LOGAN Model 862 (General Time Instrument Corp., La Salle, Ill.). \$4.95. Gravity-type lost-time indicator, sweep second hand. Small alarm dial in rear. Soft, bell-type alarm. All-metal case, glass crystal. Good numerals but no minute or hour divisions. Time and alarm easy to set. Fair stability; felt pads on legs.

■ — WESTCLOX LOGAN Model 866 (General Time Instrument Corp.). \$6.75. Gravity-type lost-time indicator, sweep second hand. Small alarm dial in rear. Loud, bell-type alarm. Hands and numerals luminous. All-metal case, glass crystal. Good numerals but

no minute or hour divisions. Time and alarm easy to set. Fair stability, felt pads on legs.

► The following clock was judged to be poorest of those in the "Acceptable" class.

■ — HARMONY HOUSE Cat. No. — 7076 (Sears-Roebuck). \$4.69 plus shipping charges. No lost-time indicator, no sweep second hand. Large, fixed alarm dial in front, but hands blended with face. Bell-type alarm rang slowly (like a spring-wound alarm clock that has run down). Plastic case, glass crystal. Good numerals but no minute divisions. Time and alarm hard to set. Fair stability.

### not acceptable

► The following clocks were rated "Not Acceptable" for the reasons indicated.

○ — SETH THOMAS PYPER E855-006 (General Time Instrument Corp.). \$5.95. Gravity-type lost-time indicator, sweep second hand. Alarm dial in front had to be viewed through small peephole in face of clock and therefore was difficult to read. Hands and numerals luminous. Plastic case with metal back, plastic crystal. Good numerals with minute divisions. Time and alarm easy to set. Good stability. "Not Acceptable" because alarm was spring-wound and became inoperative during testing. One sample tested.

○ — INGRAHAM SENTINEL LYRIC SA-14 (E. Ingraham Co., Bristol, Conn.). \$4.95. No lost-time indicator; had sweep second hand. Alarm dial in front, hand small but legible. Bell-like chime alarm. All-metal case, glass crystal. Legible dial. Time and alarm easy to set. Good stability. "Not Acceptable" because two samples of three tested became inoperative within a few weeks and the third was too noisy.

### Clocks with electric switches

#### acceptable

► The following clocks should be purchased on the basis of suitability for intended purpose.

■ — TELECHRON SELECTOR 8H55 (Warren Telechron Co.). \$14.95. No lost-time indicator, but had sweep second hand. Plastic case, glass crystal. Legible dial with minute divisions. Clock designed to turn electrical equipment (up to 1650 watts) on or off. Equipment is plugged into clock instead of into the wall. The clock has a switch with an "off" position which turns the equipment off, and an "on" position to turn it on again, manually. When set on the "automatic" switch position, the clock will automatically turn the equipment on and off. There are 48 knobs at 15-minute intervals around the face of the clock. Each knob, when pulled out, will turn the equipment on for a 15-minute period. Two adjacent knobs pulled out will cause the equipment to stay on for a half-hour, and so on. Knob settings are

automatically cancelled and have to be reset each day.

■ — TELECHRON SWITCH ALARM 8H61 (Warren Telechron Co.). \$7.95. No lost-time indicator; had sweep second hand. Alarm dial in front. Whole alarm dial must be turned to set alarm. Buzzer-type alarm. Plastic case, glass crystal. No hour or minute divisions. Time and alarm easy to set. Good stability. Clock designed to turn electrical equipment (up to 330 watts) on or off, but low wattage practically limits this feature to use with a radio. Equipment is plugged into electrical outlet on clock as in *Telechron Selector*, above. The regular noise-alarm can be turned off manually by means of a separate knob, and the radio may be turned on or off by means of a special switch on the face of the clock; besides the "on" and "off" switch positions, a third position, "alarm," is used for turning the radio on automatically at the time for which the alarm is set.

### Electric clocks without alarm

#### acceptable

► Listing is in order of over-all quality.

■ — SETH THOMAS YUKON 2-E (General Time Instrument Corp.). \$6.50. (This model made until November, 1946.) Manually set lost-time indicator, sweep second hand. Metal case, spring-mounted glass crystal. No minute or hour divisions. Stability good.

■ — SESSIONS 453D (Sessions Clock Co., Forestville, Conn.). \$7.75. No lost-time indicator, sweep second hand. Wood case. No minute or hour divisions. Poor stability.

■ — SESSIONS 451D (Sessions Clock Co.). \$4.60. No lost-time indicator; had sweep second hand. Flimsy plastic case, glass crystal. No minute or hour divisions. Poor stability; felt pads under clock.

#### not acceptable

► The following clocks were judged to be "Not Acceptable" for the reasons indicated.

○ — PENNWOOD NUMECHRON (Pennwood Numechron Co., Pittsburgh). \$10.95. Hours, minutes and seconds indicated by numbers on dials. "Not Acceptable" because of noisy and defective operation of both samples tested. Construction flimsy. Plastic case, plastic crystal. Second dial had only 58 divisions on one sample tested. Time setting difficult: necessary to reach under case to move number dials.

○ — SESSIONS 460W (Sessions Clock Co.). \$3.95. (Model no longer made, but some may still be available.) No lost-time indicator; had sweep second hand. No hour and minute divisions. "Not Acceptable" because of flimsy construction; glass crystal fell out of both samples tested. Wood frame, metal cover in back. Back and front poorly finished. Unstable.





Labels on cans of luncheon meat must carry U. S. inspection stamp and list the ingredients in order of predominance

## Luncheon meats

24 brands were tested. CU tasters found that it's true what they said about *Spam*

Twenty-four brands of canned luncheon meat, including 15 made from pork products, three from ham, four from veal and two from beef products, have been given taste and laboratory tests by CU. These meats can provide a quick cold snack, or stretch out a hot meal for an unexpected guest; they are handy to have in the cupboard.

But if you are under the impression that a pickup supper of scrambled eggs and luncheon meat is an inexpensive supper, take a look at the following prices. Canned pork products cost between 52¢ and 64¢ a pound; ham products, from 61¢ to 92¢; veal and beef products, from 44¢ to 65¢.

Because taste preference is a rather individual affair, you may not necessarily agree with the results of the CU taste tests. But because you'll be giving canned luncheon meats to stray guests now and then, it may be of some help to know how others reacted to the various brands.

The members of CU's taste panel, veterans and non-veterans alike, came to the conclusion that it's true what they used to say about *Spam*. There were nine other pork products that tasters thought better. In general, tasters seemed to prefer beef and ham products to veal and pork. But some pork rated about as high as the top beef and ham products. *Oscar Mayer Luncheon*

*Meat* and *Broadcast Redi-Meat*, for example, rated well above such well-known brands as *Prem*, *Tang*, and *Morrell Snack*.

The usual ingredients of canned meats include chopped meat, salt, sugar, spices, flavoring, and curing agents such as sodium nitrate or nitrite, or both, with or without water. The canned meats made from veal products also contained starchy meals. The ingredients are well mixed, pressed into a hard loaf, canned, and then processed in order to destroy harmful bacteria. Meats are cooked either prior to the sterilization process or during it.

Research laboratories report that the meat vitamins — the B group — with the exception of thiamin, show high retention after processing and storage. Aside from vitamin content, the wholesomeness of the meat used in the canning — though not, of course, its quality — is assured by Federal inspection. Cans must be certified with a Federal inspection stamp and establishment number, and labels are required by law to list ingredients in order of predominance.

After purchase, unopened cans of luncheon meat should be stored in a cool place; vitamins are lost more quickly at warm temperatures. Meat from opened cans may be stored in the original container, or wrapped in wax paper. But in either case, the meat should be stored in the cold part of the refrigerator and for no longer than two or three days. Meats spoil very readily, particularly during hot summer months, and eating spoiled meats is a dangerous business.

The tests performed on canned meats in the CU laboratory were made to determine the amount of drained fluids in the can, the total moisture, fat content, water-soluble materials (such as salt), and the amount of fat-free and water-insoluble materials (mainly proteins). The meats were also inspected for appearance, off-odors, color, consistency, the presence of gristle, and for their uniformity.

### Test results

All brands passed physical inspection; none exhibited any off-odors or other signs of spoilage. But moderate to extensive amounts of gristle, uniformly mixed into the meat product, were present in all pork and ham products.

The greatest differences between types of canned meat products were revealed when moisture and fat content were measured. Water-soluble content for all types ranged from 6% to 8%. In general, the higher the moisture content, the lower the fat content.

Veal and beef products were much more moist than either ham or pork, and much more free of fat. Only three pork products tested, *Oscar Mayer Luncheon Meat*, *Hygrade's Honey Brand Party Loaf* and *Swift's Prem* met the Federal specifications of 25% maximum fat content. Those brands found to have fat content of

30% or more have been listed in the ratings as having high fat content.

There was also considerable difference between types in amounts of protein residue content, with beef and veal highest, and ham and pork slightly lower. Protein residues in veal loaves with cereal flour added may include appreciable amounts of starch. For easy reference, here's a tabulation showing how the types compared in these respects:

	% Moisture	% Fat	% Residue; mainly protein
Veal or beef . . . . .	60-70	7-14	14-21
Ham . . . . .	55-61	17-24	14-15
Pork . . . . .	50-59	21-33	10-13

## Ratings of luncheon meats

### acceptable

► Listing is in order of decreasing taste score within each group. Differences in taste preference between brands was small.

### Beef and veal products

■ — BREF Kasher Corned Beef (Feinberg Kasher Sausage Co., Minneapolis). 49¢ for 12 oz.

■ — CUDAHY'S Veal Loaf Pork Added (Cudahy Packing Co., Chicago). 22¢ for 7 oz. (12 oz., 38¢). Contained veal, pork, milk, corn meal.

■ — MOR Chopped Beef (Wilson & Co., Chicago). 45¢ for 12 oz.

■ — LIBBY'S Veal Loaf Pork Added (Libby, McNeill, & Libby, Chicago). 23¢ for 7 oz. (12 oz., 39¢). Contained veal, pork, cracker meal, eggs, milk.

■ — SWIFT'S Premium Veal Loaf Pork Added (Swift & Co., Chicago). 25¢ for 7 oz. (12 oz., 43¢). Contained veal, pork, cracker meal, eggs, milk.

■ — MOR Chopped Veal (Wilson & Co.). 42¢ for 12 oz.

### Ham products

■ — ARMOUR Star Chopped Ham (Armour & Co., Chicago). 52¢ for 12 oz.

■ — SWIFT'S Premium Chopped Ham (Swift & Co.). 55¢ for 12 oz.

■ — HYGRADE'S HONEY BRAND Chopped Ham (Hygrade Food Products Corp., NYC). 69¢ for 12 oz.

### Pork products

■ — OSCAR MAYER Luncheon Meat (Oscar Mayer & Co., Chicago). 39¢ for 12 oz. Honey flavored.

■ — BROADCAST REDI-MEAT (Illinois Meat Co., Chicago). 39¢ for 12 oz. High fat content.

■ — I G A Spiced Luncheon Meat (Independent Grocers' Alliance Distributing Co., Chicago). 44¢ for 12 oz.

■ — STAHL MEYER R-T-E (Stahl-Meyer, Inc., NYC). 39¢ for 12 oz. High fat content. Bone bits found in one can.

■ — HYGRADE'S HONEY BRAND Party Loaf (Hygrade Food Products Corp.). 39¢ for 12

oz. Contained beef. Had lowest fat content of the canned porks. Large piece of bone found in one can.

■ — CO-OP Spiced Luncheon Meat (National Co-operatives, Inc., Chicago). 45¢ for 12 oz.

■ — BRUNCH (Tobin Packing Co., Ft. Dodge, Iowa). 45¢ for 12 oz. High fat content.

■ — MOR (Wilson & Co.). 42¢ for 12 oz.

■ — ARMOUR STAR TREET (Armour & Co.). 40¢ for 12 oz. Contained ham.

■ — RED & WHITE Luncheon Meat (Red & White Corp., Chicago). 47¢ for 12 oz.

■ — SPAM (Geo. A. Hormel & Co., Austin, Minn.). 43¢ for 12 oz. Contained ham.

■ — MORRELL SNACK (John Morrell & Co., Ottumwa, Iowa). 39¢ for 12 oz.

■ — SWIFT'S PREM (Swift & Co.). 39¢ for 12 oz. Contained beef.

■ — TANG (Cudahy Packing Co.). 39¢ for 12 oz.

■ — RATH BLACK HAWK Luncheon Meat (Rath Packing Co., Waterloo, Iowa). 45¢ for 12 oz. High fat content.

## The taste tests

The brands in the ratings that follow are listed in order of decreasing taste score within each type. Taste tests were conducted by a panel of 15. Each brand was uniformly prepared; the meat fluids were drained off, the surfaces containing accumulated fat and gelatinous material were trimmed away, and the meat loaf was cut into serving portions which were chilled in the refrigerator prior to serving.

Each taster recorded his taste preference as "Good," "Fair," or "Poor," and added his comments on consistency, spiciness, etc. If pieces of bone were found during the tests, this fact is noted in the ratings.

Two samples of each brand were tested.



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*Natural hair coloring comes from a pigment, melanin, deposited in hair before it leaves the follicle. Hair once grown never turns gray. Gray hair grows when pigmenting stops*

# DYES

## for gray hair

**They can color your hair but they can't restore natural color. Unfortunately, the most effective are apt to be the most risky**

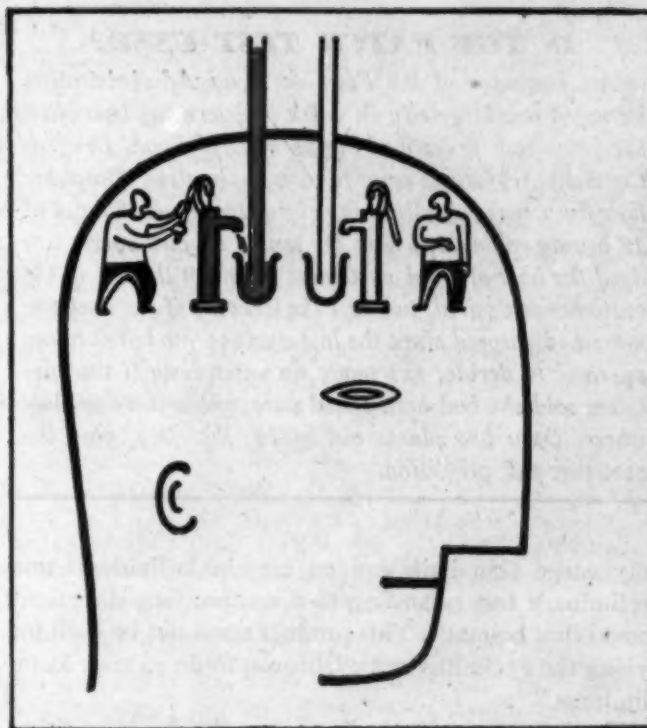
CU's best advice to graying persons is to let nature take its course, since there is no hair dye on the market capable of producing a permanent and natural color which has been proved to be completely safe.

The "best" advice is not, however, always good advice. Some persons feel that they must use hair dye for economic or other reasons. This report offers information and advice for such persons.

Gray hair is not the result of loss of color from hair already grown. The pigment — melanin — produced in the body is deposited in the hair during development in the follicle. Once the hair has grown out of the follicle no more pigment is deposited in it. Gray hairs are new hairs in which no pigment had been deposited during the formative period within the follicle. Hair once grown does not turn gray; and conversely, no dye or treatment can restore natural color to hair which is gray.

Hair dyeing is not a job for an amateur — it requires skill and caution. Though you may want to economize and do it in the privacy of your home (so that your friends will never suspect, say the ads), the possibility of disastrous results may make this a false economy. If you feel you must dye your hair, let the most skillful operator you can find do it for you. Armed with specific information about the types of hair dyes available, you will have a voice in the choice of dye, a realization of risks involved and a basis for checking the operator's work.

The three general types of dyes are coal-tar, metallic and vegetable. The coal-tar dyes are of two classes — those using finished coal-tar colors, and the amine or aniline type containing coal-tar intermediates. Coal-tar



intermediates are usually colorless "amino" compounds which produce color through oxidation on contact with air. The addition of hydrogen peroxide — or a similar oxidizing agent — hastens the oxidation process, and modifying ingredients such as amino phenols and resorcin give different shades.

### Amine-type dyes

The amine-type dyes — usually containing paraphenylene diamine or paratoluylene diamine — are the most effective products available. They are said to penetrate the cortex and color the inner substance of the hair without destroying its natural luster. They are capable of producing a wide range of colors if used properly and one application will dye hair the desired shade.

Unfortunately, however, these dyes are potentially dangerous as well as being the most successful of all hair dyes. According to a statement by the Federal Food & Drug Administration, 15 out of 1000 persons will be found hypersensitive to the first application of paraphenylene diamine, and 25 more will sooner or later acquire hypersensitivity if they continue to use the dye. Acute dermatitis, asthma, severe poisoning, and, in rare cases, death result from the use of this type of dye on persons sensitive to it.

All the amine-type dyes examined for this project, in compliance with Food & Drug Administration regulations, carried the following caution on their labels, and were accompanied by directions for the skin test:

**"Caution:** This product contains ingredients which

### IS THE PATCH TEST USED?

An inspector of the Food & Drug Administration surveyed one large city in order to determine how often the patch test, prescribed by the Federal Food, Drug & Cosmetic Act for use prior to each application of coal-tar hair dyes, was actually being given. He found that out of 12 beauty salons, two gave the test to all customers; two dyed the hair of "old customers" without the test if the customer so desired; two gave the test only if six weeks or more had elapsed since the last dyeing; one left it to the operator to decide; five made no patch tests if the customer said she had been tested once, either there or elsewhere. Only two places out of 12, therefore, gave the customer full protection.

may cause skin irritation on certain individuals and preliminary test according to accompanying directions should first be made. This product must not be used for dyeing the eyelashes and eyebrows; to do so may cause blindness."

Whether a person intending to use the dye is sensitive to it or not can be determined in advance by a "patch" test. The following or similar directions must accompany all amine-type dyes:

"With a clean brush or other applicator apply a streak of dye (exactly the same as that to be used on the hair) not less than  $\frac{1}{4}$ -inch wide and  $\frac{1}{2}$ -inch long to the skin and scalp, preferably behind one ear. The dye must be placed on both the scalp and the hairless part of the skin. Combs, hats, spectacles and similar objects should not be permitted to come in contact with the test area, nor should the area be covered with a dressing. If any kind of irritation develops within 24 hours, the dye must not be used."

*A new test must be made each time the hair is to be dyed, since a person who is not sensitive the first or second time the dye is used may become so.*

Saving time by omitting the skin test or not waiting at least 24 hours may give you many unhappy hours of illness in which to regret the hours you saved.

### Finished coal-tar products

These dyes include a group of water soluble coal tar colors from which "rinses" and "shampoo tints" are made. They are incapable of producing "permanent" colors and are washed out with every shampoo. Therefore, an unhappy choice of color is easily rectified — just shampoo it out and try another.

These dyes are available in a wide range of colors — some of which are certified by the Food & Drug Administration as harmless for cosmetic use. But of the seven rinses examined, only four were labeled as containing certified colors. The other three — *Dyart*, *Lovalon* and *Noreen* — bore no indication that the colors were certi-

fied. Since the consumer cannot be certain that a certified dye is used in every package of these brands, CU considers them "Not Acceptable."

In recent years, still another group of finished coal-tar dyes claimed to produce "permanent" colors — sulfonated azo dyes — has appeared on the hair dye market. *Sears Approved Hair Dye* and *Lastone* are two brands of this type. According to the directions, these dyes work "gradually and gently" and "it may take several applications to obtain the full color change that you desire." CU's tests indicated that these dyes are satisfactory insofar as the appearance of the hair is concerned. Repeated applications were necessary with bottles marked "Dark Brown" to dye the hair a color which could be considered dark brown, however.

So far, no published reports of irritation or poisoning due to these dyes have come to CU's attention. The products are labeled "harmless to normal hair and scalp."

### Metallic dyes

Most of the hair dyes sold for home use are those depending on the action of a metallic salt. Dyes of this type are rated "Not Acceptable" because they are all more or less poisonous and the results are generally unsatisfactory.

These products are not really dyes. They are solutions of metallic salts — usually colorless — which, in the presence either of light and air or of a "developer," deposit on the hair a dark-colored coating of the metal or its sulfide. Lead solutions with sulfur, silver salts with or without developers, copper and iron salts with developers, and occasionally bismuth and cobalt are used.

CU considers the metallic dyes more dangerous than the amine dyes because they may produce poisoning slowly and after prolonged use. There is no way to determine in advance a person's susceptibility to poisoning by these products.

The lead dyes are potentially the most harmful of this type. Lead is cumulative in its effects and persons using lead hair dyes are subject to chronic lead poisoning. The symptoms of such poisoning are not always definite or easily recognizable. Though silver is not so dangerous as lead, it may, in time, produce argyria, a permanent bluish discoloration of the skin.

The copper salts used in hair dyes are probably not injurious in themselves, but they require a toxic oxidizing agent (usually pyrogallol) to make them effective as a dye. Pyrogallol may be absorbed by the skin, causing serious systemic poisoning as well as skin irritation and dermatitis.

Aside from considerations of health, the metallic dyes are "Not Acceptable" from an esthetic point of view. They give the hair a dull lackluster appearance. Repeated applications are necessary to produce a deep



color, and the intermediate and final colors may be quite unnatural in appearance.

Most of the metallic dyes purchased carried some warning statement as "For external use only," "contains ingredients which may cause skin irritation," "contains a metallic salt," etc. Only a few, however, carried adequate warning as to possible toxic effects and against their use as eyelash or eyebrow dye, or against use when the skin is scratched, sore or broken. Unfortunately there is no blanket ruling under the Food, Drug & Cosmetic Act which outlaws metallic dyes, restricts their use or

requires special labeling as to content and possible toxic effects. Some states prohibit the sale of lead dyes.

## Vegetable dyes

Henna, a powder obtained by grinding the leaves and stems of the Egyptian privet, a small shrub, is the best known and most widely used of the vegetable colorings. It is harmless to most persons, but it may make the hair brittle. Pure henna produces red shades only. "Compound hennas" are mixtures of henna with metallic salts and pyrogallol, and are therefore "Not Acceptable."

## Ratings of hair dyes

► The ratings which follow are in alphabetical order within each group. Prices listed were the prices paid, Federal Cosmetic Tax not included unless otherwise noted. List prices were higher in most cases.

### Coal-tar dyes

#### acceptable

► The following brands — sulfonated azo-type dyes — gave "permanent" color (did not wash out when shampooed) but required repeated application to produce the color named on the label.

■ — LASTONE (Gorolin Corp., Chicago). \$2.40 plus postage, tax included. Contents not stated; found contents, 6 fl. oz. Dark Brown tested.

■ — SEARS APPROVED HAIR DYE Cat. No. — 6207E (Sears-Roebuck). \$1.24 plus postage, tax included, for 6 fl. oz. Dark Brown tested.

► The following brands — all amine-type dyes — are considered "Acceptable" provided a preliminary skin test is made before each use and the person tested is found not to be sensitive. All brands listed carried the caution and directions required by the Food & Drug Administration.

■ — "INSTANT" CLAIROL (Clairol, Inc., Stamford, Conn.). 98¢ for 1 1/5 oz.

■ — EAU SUBLIME (Guilmard Co., Coral Gables, Fla.). \$1.09 for 2 oz.

■ — INECTO WITH LUSTRIUM (Sales Affiliates, Inc., NYC). 98¢ for 1 oz.

■ — ROUX HAIR DYE (Roux Distributing Co., NYC). \$1 for 1 oz. An "expiration" date is stamped on the carton.

■ — ROUX OIL SHAMPOO TINT [CONCENTRATE] (Roux Distributing Co.). \$1.25 for 1 1/2 fl. oz. "Expiration" date on carton.

■ — TINTZ CREME SHAMPOO HAIR COLORING (Tintz Co., Chicago). 89¢ for 3/8 oz.

► The following brands of rinses used finished coal-tar colors which were Government Certified as harmless; they are only temporary, however, lasting from shampoo to shampoo.

■ — PROGRESSIVE CLAIROL (Clairol, Inc.) 89¢ for 1 1/5 fl. oz.

■ — GOLDEN GLINT Hair Rinse (Golden Glint Co., Seattle). 25¢ for 5 rinses.

■ — NESTLE COLORINSE (Nestle-LeMur Co., NYC). 25¢ for 5 rinses. No. 6 Chestnut Brown.

■ — TINTZ Color Shampoo (Tintz Co.). 10¢ for a small (about 0.5 oz.) cake of soap containing dye. Weight not stated.

#### not acceptable

► The following brands of rinses using coal-tar colors were considered "Not Acceptable" because they carried no indication that Government Certified colors were used.

○ — DYART Liquid Hair Rinse (Howe & Co., Hollywood). 10¢ for 1/2 oz.

○ — LOVALON Hair Rinse (Lovalon Laboratories, San Francisco). 10¢ for 2 rinses.

○ — NOREEN Super Color Rinse (Noreen, Inc., Denver). 50¢ for 8 rinses.

### Metallic salts

#### not acceptable

► Unless otherwise stated, labels carried warnings. These brands contained lead.

○ — BARBO COMPOUND (Barbo Mfg. Co., NYC). 49¢ for 1/4-oz. package. To be mixed with bay rum, glycerine and water or with Barbo Toner and water before use. Package included a label with good caution and warning to be pasted on bottle.

○ — BAY-ROMA (Bay-Roma Co., NYC). 59¢ for 8-oz. bottle.

○ — COFFELT'S HAIR COLORING (Coffelt Chemical Co., NYC). 79¢ for 8 fl. oz.

○ — HAY'S HAIR COLORING (Hay's Co., Brooklyn). 59¢ for 4 fl. oz.

○ — NEW KOLOR-BAK (Consolidated Royal Chemical Corp., Chicago). \$1.39 for 8 fl. oz. Name is misleading, but the statement, "a solution for artificially coloring gray hair" is conspicuously boxed on carton and label.

○ — LEA'S HAIR PREPARATION (Lea's Tonic Co., Tampa). 98¢ for 3 fl. oz. No warning on carton or bottle; caution on direction sheet.

○ — NOURISHINE for Coloring Gray Hair (Nourishine Sales Co., Hollywood). \$1.19 for 8 fl. oz. Only warning, "For External Use Only."

○ — PARKER'S HAIR BALSAM (Hiscox Chemical Works, Patchogue, N.Y.). 98¢ for 8 fl. oz.

The word, "Balsam," in the name of this product is misleading.

○ — WESTPHAL'S HAIR COLOR RENEWER AID (Paul Westphal, Inc., NYC). 69¢ for 7 fl. oz.

► The following brands contained silver with or without a developing agent.

○ — CANUTE WATER (Canute Co., Milwaukee). 98¢ for 4 fl. oz. Improper warning: The words, "absolutely safe" stand out more boldly on the carton than do the words "for external use only." Statement "scientifically recolors gray hair" is misleading.

○ — CO-LO (Prof. John H. Austin, Los Angeles). \$1.50 for 6 fl. oz. Inadequate warning: "For External Use Only."

○ — MARY T. GOLDMAN'S GRAY HAIR COLORING PREPARATION (Mary T. Goldman Co., St. Paul). \$1.39 for 6 fl. oz. Warning on carton only, not on label on bottle.

○ — ROYAL HAIR RESTORER (A. M. Cooper, successor to Rice Mfg. Co.). \$1.25 for 6 fl. oz. Misbranded and misleading: Label says "This preparation will restore Gray Hair to its Original Color." No warnings, no directions for use and no mfr's address on label.

► The following brands contained copper or iron or both plus a toxic developing agent such as pyrogallol.

○ — B. PAUL'S COMPOUND (B. Paul, Inc., NYC). 98¢ for 3 1/2 oz.

○ — BROWNTONE (Kenton Pharmacal Co., Covington, Ky.). \$1.39 for 3 1/8 fl. oz.

○ — DAMSCHINSKY'S LIQUID HAIR DYE (Carl Damschinsky, Inc., NYC). 49¢ for 1/4 oz.

○ — WALLUTTA (Wallnetta) Hair Stain (Howard E. Nichols, St. Louis). 69¢ for 2 fl. oz.

○ — WYETH'S SOLUTION SAGE AND SULPHUR AND FERRIC ACETATE (Wyeth Chemical Co., Jersey City). \$1.19 for 12 fl. oz.

### Vegetable (henna) dyes

#### acceptable

► Dyes of pure powdered henna are harmless to most people, but produce reddish tints only.

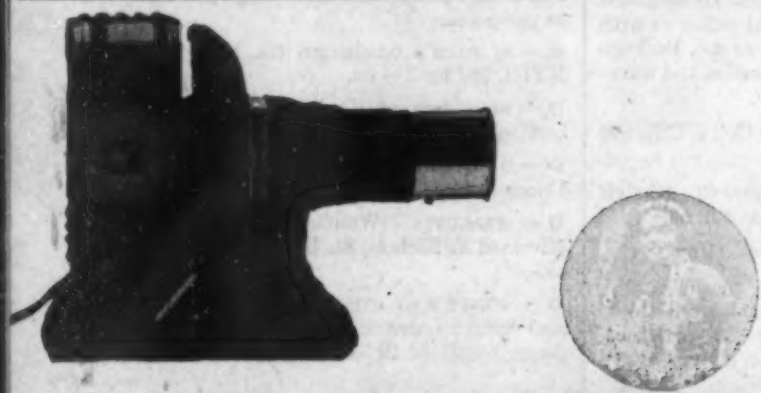
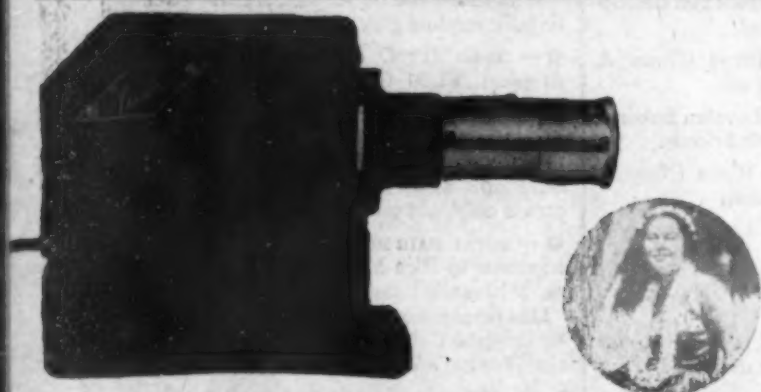
■ — AIME Egyptian Henna (powdered) (Aime, NYC). 98¢ for 16 oz.

■ — HENNA-SAN Pure Vegetable Henna for the Hair (Lehn & Fink Products Corp., Bloomfield, N.J.). 59¢ for 1/4 lb.

# Slide projectors

They offer the best means of

viewing small color slides and cost from \$15 to \$130; here are results of tests on 23 brands



*Insets above show range of intensity from "Best Buys" of 300-watt, 150-watt and 100-watt projectors (top to bottom): SVE Model AAA with film strip attachment; Viewlex AP-3; SVE Model RK. Gradation of color is here used only as measure of intensity for same-size image. In practice, low wattage machines give satisfactory image if size is not too large and if a good screen is used*

Slide projectors enable the color photograph enthusiast to share his pleasures and his triumphs conveniently with a whole group of friends, as contrasted with hand and table viewers (*Reports*, July and October, 1946) which can be used by only one person at a time. The 23 machines tested by CU all provide an enlargement anywhere from about ten to more than 50 times. But at higher magnifications, the light intensity may be too low for satisfactory viewing. For home use, an enlargement of 24x36 inches, or about 27 times for standard 35 mm. color film mountings, is a satisfactory size. Since all projectors provide it, the questions become how well, with what convenience and at what price you can get a projector to perform its task.

The slide projectors rated included 100-, 150-, and 300-watt models, and ranged in price all the way from a low of \$15 for the *Voigt* to a high of \$130 for the *Filmo Duomaster*. The lowest-priced "Acceptable" machine was the *Kodaslide Model 1* at \$23.05. Five of the 23, including one of the most expensive ones, were found to be "Not Acceptable" because of inability to produce a sharp image, or to reproduce original colors, or because of color fringes in the image.

Regardless of the remarkably wide price range, the function and even the basic design of all the projectors were the same. Each machine projects a greatly enlarged image of a standard miniature color slide on a suitable viewing screen. Each has a projection light bulb backed by a mirror, a system of condenser lenses to concentrate the light on the slide, a slide holder, and a focusing lens for projecting the enlarged image on a screen. Most of the instruments have a heat-absorbing element within the condenser system; two of those tested had, in addition to a heat-absorbing element, a built-in fan for cooling. Either cooling system can be perfectly satisfactory, but the fan models can be used only on a-c circuits because of the motors.

## The best was expensive

The best machine, in terms of both performance and convenience, was the *Filmo Duomaster*, made by Bell and Howell. Its excellent design makes a simple matter of operation and maintenance. The heat-filtering glasses did an outstanding job of absorption without the help of a fan; a black-and-white slide could be left in place for



a half hour without any damage. Unfortunately, the high price (\$130) of this projector keeps it out of the "Best Buy" class.

In a more reasonable price range, the "Best Buy" is the *SVE (Society for Visual Education) Model AK*, a 300-watt projector with coated lens selling at \$62.90 without a film strip attachment. But the *SVE Model AAA* at \$80 is the same projector equipped with an excellent film strip mechanism, therefore, if film strips are among your present or contemplated possessions, this model would be the "Best Buy."

In the \$40 to \$50 price range, the *Viewlex Model AP-3* at \$45.95, a 150-watt projector with coated lens, is the "Best Buy." The *Spencer Delineascope Model MK 150* at \$45, and the *Kodaslide Model 2A*, with coated lens, at \$47.50 are next in line. Of the latter two, the *Delineascope MK 150* is much more convenient; the *Kodaslide 2A* gives more light, but is not equipped with a case and is not as well-constructed as the *Delineascope*.

Of the projectors priced below \$40, the *SVE Model RK*, a 100-watt projector at \$35.95, rates as "Best Buy." It is well-built, very compact, and easy to operate.

Evaluation of the relative merit of the projectors was based on a consideration of the quality of the image, the durability of the machine, and convenience of use and maintenance. And each of these factors in turn can be broken down into several elements that are of importance to the purchaser.

### Check these points

Of prime importance is the quality of the image. It should be fairly sharp in all areas of the picture; the colors should be faithfully reproduced; there should be no colored fringes along lines in the picture. All these elementary standards were met by the 18 machines in the "Acceptable" list.

An important element of difference among the machines tested, however, was the brightness of the image. The brightness, or the intensity of illumination inherent in a projector, can make a good picture look bright and sparkling or dull and lifeless. The enjoyment one gets from miniature color slides, therefore, is influenced more by this single factor than by any other. Among the "Acceptable" projectors, brightness of illumination varied from a low of nine foot-candles given under standardized conditions by *Kodaslide Model 1*, which projects a very dull picture indeed, to a high of 56 foot-candles given by the *Filmo Duomaster*.

Intensity of light is affected by two independent factors: the lamp wattage, and the efficiency of the optical system. Wattage alone cannot be used as a guide to the purchase of high intensity projectors. Using the same lamp in each projector of a group having the same rated wattage, the light intensity of the best projector was as much as twice as great as that of the poorest. Thus, it can happen (and did) that some 150-watt projectors give the same light intensities as some 100-watt projectors do, and the poorest 300-watt projectors only equal the best 150-watt machines.

Two machines had unusual impediments to good illumination. The *Ampro Model 30A* contained an opalescent lens in the condenser system which appeared to have been designed to spread the light more uniformly over the entire picture area. While it achieved this objective, it decreased over-all intensity to considerably below average for 300-watt projectors. And the *Three Dimension Model DP 300* contained a heat-absorbing glass in the condenser system which not only absorbed infra-red, but absorbed a considerable amount of visible red as well. The light intensity was decreased to below that of a good 150-watt projector, and the color of the pictures was so badly affected by the resulting greenish light as to make this instrument "Not Acceptable."

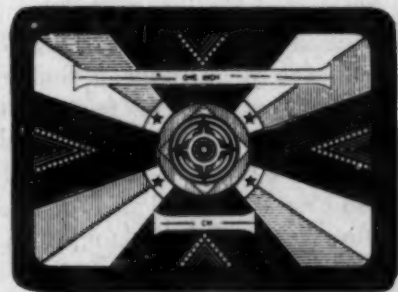
Coated lenses offer a distinct advantage in a slide projector, as in most other optical apparatus. Because they cut down reflections at each coated surface, they allow more light to come through. Moreover, since projection lenses are compound lenses containing many surfaces, the effect is considerable with them. In those instances where CU was able to get both coated and uncoated lenses for the same model, the coated lenses delivered about 30% more light by actual measurement. CU's ratings, therefore, are based on performance with coated lenses wherever they were available.

In all projectors the light intensity fell off toward the edges of the picture. In most machines the intensity at the edges was 75% of that at the center — not too serious a flaw, since objects of interest are usually at the center of a picture anyway. The best machine in this respect was the *Filmo Duomaster*; its intensity at the edges was 95% that at the center. But in some machines the drop from the center to the edges amounted to almost 50%.

It should be pointed out that light intensity and color may be greatly affected by the screen on which the image is projected. In order to get the most out of a projector, good white surfaces should be used. Projection of pictures on colored walls decreases illumi-



Slide above was used for color comparison; slide below for definition



### **Hand and table model slide viewers**

If you feel that a slide projector such as those discussed here is too big an item for your budget, you may prefer a hand or a table model viewer for your color slides. For complete reports on these see the July and October, 1946 Reports, respectively. Here are the viewers that were judged to be top quality at the time the tests were made:

#### **HAND VIEWERS:**

Kimac (Kimac Co., Old Greenwich, Conn.). \$3  
The Greatest Show on Earth (Kimac Co.) \$1.89  
Hollywood De Luxe (Craftsmen's Guild, Hollywood, Calif.). \$3

#### **TABLE-MODEL VIEWERS:**

Adel Model 200 (Precision Products Corp., Burbank, Calif.). \$19.75  
Kimac (Kimac Co., Old Greenwich, Conn.). \$29.50  
Bausch & Lomb (Bausch & Lomb Optical Co., Rochester, N. Y.). \$12.50

nation and alters colors. CU plans to report on screens in the near future.

The ease with which the machine can be disassembled for cleaning, particularly for you to get at the condenser lenses which are not in a sealed mounting, is important. Most machines are rather ingeniously designed for the purpose, but a few, like the *Vokar*, require tools or forcing of parts before they can be disassembled. The *Ampro Model 3A* and both of the *Three Dimension* models are easy to disassemble, but have condensers that are tricky to reassemble. Instructions furnished with each projector should be followed carefully.

Practically all the projectors require some setting up before they can be operated. Usually the slide holder and the projection lens must be mounted into proper position, since in most instances they must be stored separately in the case. Once the machine is set up, the convenience of the slide holder becomes of prime importance. As the operator withdraws and inserts slides, he may find the holder a source of annoyance, delay, and discomfort.

### **Focusing**

Theoretically, projectors should be focused only when operation begins. But usually it is necessary to refocus often. For one thing, the position of the emulsion side of the slides, if it is not kept consistent, will require refocusing each time a change is made. In all machines, the projection lens should move in and out easily, but should not be loose enough to fall out if the machine is inadvertently tipped forward. Since this characteristic may vary from sample to sample of the same brand, check on ease of focusing before you buy a projector.

Projectors are furnished with lenses of various focal

lengths, of which the five-inch is most popular. A five-inch lens produces a 2x3 foot image at 12 feet, while a four-inch lens requires only 10 feet to produce the same size image. For a small room, then, a four-inch lens may be more desirable than a five-inch. The *Argus* and the *Kodaslide Model 1* have four-inch lenses. The *Novex*, because it is a combination viewer and projector, has a three-inch lens, and must be placed about six feet from the screen for a 2x3 foot image.

The rated life of the projection lamps is 25 to 50 hours; but if they are jarred while hot they will not last that long. Lamps must be well covered to avoid excessive stray light, but they must be easily uncovered to permit replacement. Keep a spare lamp on hand, and, if you are interested in bright pictures and can stand an added expense (\$1.75 to about \$4), replace the bulb as soon as it loses efficiency noticeably. By trying the spare lamp occasionally, you can keep a fairly good check on your lamp's efficiency. Examine it now and then for blackening of the glass, also.

Additional features to be considered include the tilting device by which the projector is tilted to throw the image upward or downward as required by the position of the screen, the stability of the machine, and the materials of which the projector is made — substantial or flimsy, metal or plastic.

Two models of projectors are designed to be used as slide viewers as well: the *Novex* and the *Viewlex AP-1*. Each of these functions as a viewer by projecting a small image. The *Novex* projects this image on a built-in ground glass. The *Viewlex* has a small screen which is mounted in the carrying case; the small image is achieved by replacing the five-inch focal length lens by a special two-inch lens. These projectors are rather high-priced, even considering the double function which they fulfill. If you must have such a machine, the better buy is the *Viewlex AP-1* with a two-inch lens for \$64.50. It can be used both for the small screen and for full size projection at a distance of four feet from the screen.

Among the projectors tested were five which were or could be equipped with special attachments for the projection of film strips. These were the *Argus*, the *Viewlex*, the *SVE* (Society for Visual Education) *Model AAA*, the *Golde Filmatic* and the *Three Dimension Model DP 300*. Of the four instruments having the attachments, the *SVE Model AAA* is the best machine for institutions which will have large audiences. It gives brighter images than the *Golde*; it can be set to frame single or double frame pictures automatically, while the *Golde* feed must be turned twice for double frames; it can be changed to slide projecting with less trouble; and it costs \$80 to the *Golde's* \$95.72.

The *Viewlex Model AP-3* is a medium light intensity projector which can be equipped with a film strip attachment and used in moderate size lecture rooms. The price of this model including the film strip attachment



is \$58.45. By and large, the film strip attachment seemed well designed.

The *Argus* film strip attachment is rather inconvenient to manipulate, making it acceptable only if used so infrequently that its inconvenience does not become troublesome. The low light intensity of the *Argus* restricts its use to small rooms.

## How CU tested

Optical tests performed on the projectors by CU covered sharpness of the image, flatness of the focal plane, brightness and uniformity of illumination, quality of color, and presence of color fringes. Sharpness of the image was tested by means of a fine-line slide; if the definition was fairly clear at all areas of the picture simultaneously, the flatness of the field was judged to be satisfactory.

Brightness and uniformity of illumination were tested by projecting an accurately-focused 25x37 inch image, then removing the slide, and measuring the light intensity first at the center and then at the four corners

of the picture area, by means of a light meter placed so that it faced the projector at the surface of the screen. Wherever possible, the same lamp was used in each machine, and the voltage was controlled by a voltage regulator. Where it was not possible to use the same lamp because of differences in sockets, the relative brightness of the lamps outside the projectors was determined by means of a light meter, and suitable corrections for the non-standard lamps applied to the measured light intensities.\*

Quality of color was determined through an examination of the color of the light projected without a slide, and through side-by-side comparisons of the colors produced from identical slides by the machine being tested and by a carefully selected standard.

Convenience of operation and maintenance were checked by operating the machines, cleaning them, and by replacing the bulbs. And because paper-mounted slides are likely to be warped by the heat of the projector, time within which a standard black-and-white slide warped was noted.

## Ratings of slide projectors

► *Ratings are based on performance with coated lenses, where available. Many manufacturers have recently switched to coated lenses, but some of the uncoated lenses are still on the market. Wherever coated lenses are indicated in the ratings below as being available, CU recommends that the purchaser not accept the uncoated ones. Prices include storage case, where available.*

### best buys

► *Each of the following models is the "Best Buy" within its particular price range.*

■ — SVE Model AK (Society for Visual Education, Chicago). \$62.90. 300 watts. Coated 5-inch lens. Excellent light intensity, average uniformity of illumination. Well constructed, easily operated and cleaned. Available with well-designed film strip mechanism as Model AAA at \$80. Sprocket feed framed single or double frames automatically, rewind film while projecting; could be rotated to any angle very conveniently, locked in horizontal or vertical position. Excellent for institutional use. Excellent storage case.

■ — VIEWLEX Model AP-3 (Viewlex, Long Island City, N. Y.). \$45.95. 150 watts. Coated 5-inch lens. Good light intensity, average uniformity of illumination. Good construction, easily operated and cleaned. Film strip attachment available at \$12.50. Excellent storage case.

■ — SVE Model RK (Society for Visual Education). \$35.95. 100 watts. Uncoated 5-inch lens. Fair light intensity, average uniformity of illumination. Very compact ma-

chine, good design. No film strip attachment. Excellent storage case, and the smallest machine available.

### acceptable

► *In estimated order of quality.*

■ — FILMO DUOMASTER (Bell & Howell, Chicago). \$130. 300 watts. Coated 5-inch lens. Highest light intensity, most uniform illumination, and most easily used and cleaned of the projectors tested. No film strip attachment. Excellent storage case.

■ — SVE Model AK (see "Best Buys").

■ — DELINEASCOPE Model MK 300 (Spencer Lens Co., Buffalo). \$93. 300 watts. Uncoated 5-inch lens. High light intensity equal to *Filmo Duomaster*, but only average uniformity of illumination. Taller and heavier than average size on account of section containing motor and fan. Ac only. Awkward to handle and tilt. No film strip attachment. Excellent storage case.

■ — THREE DIMENSION Model TDC 300 (Three Dimension Co., Chicago). \$70.20. 300 watts. Coated 5-inch lens. Very good light intensity, average uniformity of illumination. Easily operated and cleaned, but re-assembling of condenser was tricky. Heat filtering glass cracked in two samples. No film strip attachment. Excellent storage case.

■ — GOLDE Model 300-P (Golde Mfg. Co., Chicago). \$66.91. 300 watts. Uncoated 5-inch lens. Very good light intensity, average uniformity of illumination. Black and white slides were inclined to warp if left in light path more than 5 minutes. Easily cleaned. Only slide holder tested that collected slides at left side of projector — an

arrangement that made it inconvenient to look at a slide a second time. With film strip attachment, \$95.72. Change to film strip attachment required changing projection lens mount and a condenser lens. Film strip feed framed automatically for single frames only. Excellent storage case.

■ — AMPRO Model 30A (Ampro Corp., Chicago). \$70.20. 300 watts. Coated 5-inch lens. Good light intensity, but little better than a good 150-watt projector. Good uniformity of illumination; condenser system contained an opalescent lens. Easily operated and cleaned, but condenser was tricky to re-assemble. No film strip attachment. Fair storage case.

■ — BAUSCH AND LOMB Cat. No. — 41-26-38 (Bausch and Lomb Optical Co., Rochester, N. Y.). \$69. 150 watts. Uncoated 5-inch lens. Good light intensity, better than average uniformity of illumination. Good construction. Easily operated and cleaned. Black and white slides were warped if left in light path more than a few minutes. No film strip attachment. Excellent storage case.

■ — VIEWLEX Model AP-3 (see "Best Buys").

■ — DELINEASCOPE Model MK 150 (Spencer Lens Co.). \$45. 150 watts. Uncoated 5-inch lens. Fairly good light intensity, average uniformity of illumination. Much easier to handle than the 300 watt *Delineascope* model, which had tall, heavy fan and motor housing. No film strip attachment. Excellent storage case.

■ — DELINEASCOPE Model MK 100 (Spencer Lens Co.). \$40. 100 watts. Uncoated 5-inch lens. Fair light intensity, average uniformity of illumination. Only apparent

difference from model MK 150 was lower wattage lamp and absence of heat filtering glass. No film strip attachment. Excellent storage case.

■ — SVE Model RK (see "Best Buys").

■ — VIEWLEX Model AP-1 (Viewlex). \$64.50 for projector with 2-inch lens; \$84.45 with additional 5-inch projector lens and condenser lens. 150 watts. Coated lenses. Good light intensity, average uniformity of illumination. Combination viewer and projector. Small built-in screen in storage case for use with 2-inch lens for viewing by one or two persons. Projector itself mounted on a folding frame base permanently attached to the storage case; warping of the storage case may throw the projector off level. Folding frame not sturdy enough to withstand rough handling. Folding slide holder arms also not very sturdy, easily bent. No level device on early models; late models have leveling device on outside of case, which must be disassembled for storage when machine is not in use. Film strip attachment available at \$12.50. Good storage case.

■ — KODASLIDE Model 2A (Eastman Kodak Co., Rochester, N. Y.). \$47.50. 150 watts. Coated 5-inch lens. Good light intensity, slightly better-than-average uniformity of illumination. Plastic housing. Easily cleaned. Slide holder retaining spring fell out easily. Slides sometimes caught on edges of slide holder while being inserted. A condenser lens cracked from heat in one sample. No film strip attachment. Furnished in pasteboard box; no storage case available.

■ — ARGUS Model PA (Argus, Ann Arbor, Mich.). \$27.75. 100 watts. Coated 4-inch lens. Fair light intensity, somewhat below-average uniformity of illumination.

Only fair definition in one sample. Slide holder of unconventional rotating type, did not index well; if slide-retaining springs loosened, slides tended to fall out of holder. With film strip attachment, \$31.70. Film strip attachment not convenient to use with both vertical and horizontal shots on same strip, since attachment could not be rotated and had to be removed and replaced at 90° from original position. Framing manual, with no automatic framing. Furnished in paper box; no storage case available.

■ — MARTON Deluxe model (Marton Projector Co., NYC). \$39.50. 150 watts. Uncoated 5-inch lens. Fair light intensity, but no better than that furnished by a good 100 watt projector. Average uniformity of illumination. Slide holder of good design but not well made; framing pin at center too short, and slid under frame occasionally. Machine got very hot during use because of inadequate ventilation. No film strip attachment. Somewhat difficult to clean, which was important because no storage case was available.

■ — NOVEX (Novex Div., Utility Supply Co., Chicago). \$56.85. 150 watts. Uncoated 3-inch lens. Combination slide viewer and projector. Fair light intensity, good uniformity of illumination. Slide holder got out of order easily. Condenser retaining spring easily deformed, making cleaning risky. Bulky and awkward construction due to built-in ground glass screen for viewing by one or two persons. Housing entirely of plastic, had to be handled carefully. Focusing device not well-made. Had to be cleaned often because of open construction. No film strip attachment. No storage case available.

■ — KODASLIDE Model 1 (Eastman Kodak Co.). \$21.10, plus \$1.95 for slide carrier.

100 watts. Uncoated 4-inch lens. Poor light intensity, below-average uniformity of illumination. Flimsy plastic housing, poor assembly design. Slide holder retaining spring fell out easily. Slides sometimes stuck during insertion. No provision for leveling. No film strip attachment. No carrying case available.

#### not acceptable

► Listed in order of decreasing price.

○ — THREE DIMENSION Model DP 300 (Three Dimension Co.). \$92, with film strip mechanism. 300 watts. Coated 5-inch lens. Condenser and heat glass filter cut so much of the red end of the spectrum as to change the shade of colors in color slides and cut down total illumination to a point below that of several 150-watt projectors.

○ — MARTON Standard model (Marton Projector Co.). \$29.50. 100 watts. Uncoated 4-inch lens. Focal plate not flat, image could not be in focus at center and at edges simultaneously. Color fringes present in entire picture area except at center.

○ — VOKAR N.D. (Vokar Corp., Dexter, Mich.). \$24.50. 100 watts. Uncoated lens, focal length variable from about 2 to 4 inches. Color fringes present in entire picture area except at center.

○ — VOKAR (Vokar Corp.). \$15.90. 100 watts. Uncoated 4-inch lens. Poor definition; focal plane not flat; color fringes in entire picture area except at center.

○ — VOIGT (Camera Specialties Co., NYC). \$15. 100 watts. Uncoated 4-inch lens. Poor definition, impossible to obtain a clear image. Color fringes present around periphery of picture area.

### Useful—but not as advertised

CU has checked up on claims that the *Everclean Sanitary Filter* is "the greatest invention since the vacuum cleaner replaced the broom." It turns out that this "Revolutionary New Invention," as it is also described, is essentially a rather expensive application of an old idea. The *Filter* is a zippered, cloth bag, provided with an inner, paper filter bag, which can be substituted for the regular bag on your upright vacuum cleaner, whatever its make.

Inserting a paper bag inside a regular cleaner bag is the old idea; but it is true that being able to fit such an arrangement to any upright, regardless of make, is a new wrinkle and a useful one. For cleaning a regular bag is an extremely messy business — one that the *Everclean* eliminates, and neatly, too. Only a very small amount of dirt falls from the end of the *Everclean* filter bag when it is removed and thrown away.

Left with that, some housewives might feel that \$7 for the *Everclean* plus 18¢ for each filter bag would be

money well spent. But CU's tests showed that the housewife pays for her *Everclean* in loss of cleaner efficiency as well.

In investigating the manufacturer's claims for increased cleaner efficiency, CU cleaned a naturally dirtied rug, by alternating, for short periods, a Hoover 28 fitted with the *Everclean*, and the same machine fitted with its regular bag. These tests were run first with a new *Everclean* and a freshly-cleaned Hoover bag, then with both bags half-full, and finally with both almost completely full. Dirt removal rate for each bag was determined, and relative efficiency calculated. At no time did the machine, when fitted with the *Everclean*, show an efficiency greater than 66% of its cleaning efficiency when used with the regular bag.

Possibly this decrease in cleaning efficiency isn't enough to scare you away from the *Everclean*. If that's the case, and if the cost seems reasonable to you, then you may find the new arrangement a welcome relief from the usual bag-cleaning routine.



# Canned tomato juice

**CU has tested 45 brands, and finds quality, in general, much improved**

The quality of tomato juice has improved considerably since CU last tested it, in 1944. At that time, 41 out of 61 brands were found to be Grade A, 16 brands were Grade C, and four were "Not Acceptable." This time, out of 45 brands tested, 41 were Grade A, three were Variable (Grade A and Grade C); only one was Grade C — and this was so labeled.

Thirty-two of the brands tested in 1944 were available for test this year. The average price increase for these 32 brands was 2½¢ for a No. 2 can (1 pint, 2 fluid ounces). Present prices range from 11¢ to 18¢ for the same size can; 21 of the 41 Grade A brands cost 14¢ or less.

► Only those brands packed under continuous inspection by the U.S. Dept. of Agriculture may be labeled "U.S. Grade A," etc.; brands labeled simply "Grade A," etc., may or may not have been so inspected. Since quality differences between most brands were small and prices varied from store to store, brands are listed alphabetically, within grade. Price is for a No. 2 can (1 pt., 2 fl. oz.) unless otherwise noted. Any No. 2 can costing 14¢ or less and listed below as Grade A, may be considered a "Best Buy."

## acceptable

### Grade A

■ ARMOUR'S STAR (Armour & Co., Chicago). 16¢.  
■ BERNICE (Krasne Bros., NYC). 18¢.  
■ BLACKBIRD (H. P. Lau Co., Lincoln, Neb.). 13¢. 33¢ for 1 qt., 14 oz.  
■ CHERRY VALLEY (Jewel Food Stores, Chicago). 11¢.  
■ CLOVER FARM (Clover Farm Stores Corp., Cleveland). 15¢.  
■ COLLEGE INN Tomato Juice Cocktail (College Inn Food Products Co., Chicago). 14¢.  
■ CROSSE & BLACKWELL (Crosse & Blackwell Co., Baltimore). 16¢.  
■ DELLFORD (Middendorf & Rohrs, NYC). 17¢.  
■ DEL MONTE (California Packing Corp., San Francisco). 14¢.  
■ D. MANN (Adams Apple Products Corp., Aspers, Adams County, Pa.). 17¢.  
■ FILIGREE (Filigree Quality Foods, Inc., Jersey City). 16¢.

■ FINAST (First National Stores, Inc., Somerville, Mass.). 13¢. One of 4 cans tested Not Certified because of excessive mold.  
■ FRESHPAK (Grand Union Co., NYC). 12¢.  
■ GRISDALE (Gristede Bros., NYC). 15¢. One of 4 cans tested Not Certified because of excessive mold.  
■ HEART'S DELIGHT (Richmond-Chase Co., San Jose, Calif.). 13¢.  
■ HURFF (Edgar F. Hurff Co., Swedeshoro, N.J.). 17¢.  
■ I G A (Independent Grocers' Alliance Distributing Co., Chicago). 12¢.  
■ IONA Grade C (A&P, NYC). 12¢.  
■ ISLAND MANOR (H. C. Bohack Co., Brooklyn). 13¢.  
■ KEMP'S SUN-RAYED (Sun-Ray Co., Frankfort, Ind.). 15¢.  
■ KRASDALE (Krasdale Foods, Inc., NYC). 16¢.  
■ KROGER'S COUNTRY CLUB QUALITY BRAND (Kroger Grocery & Baking Co., Cincinnati). 11¢.  
■ LIBBY'S (Libby, McNeill & Libby, Chicago). 12¢.  
■ MONARCH (Reid, Murdoch & Co., Chicago). 14¢.  
■ P AND G (Paxton & Gallagher Co., Omaha). 12¢.  
■ PHILLIPS DELICIOUS (Phillips Packing Co., Cambridge, Md.). 13¢.  
■ PREMIER (Francis H. Leggett & Co., NYC). 17¢. 29¢ and 35¢ for 1-qt. bottle.  
■ PRIDE OF THE FARM (E. Pritchard, Inc., Bridgeton, N. J.). 13¢.  
■ RED & WHITE (Red & White Corp., Chicago). 15¢.  
■ ROYAL SCARLET (R. C. Williams & Co., NYC). 16¢.

■ SACRAMENTO U. S. Grade A (Berent Richards Packing Co., Sacramento). 16¢.  
■ S AND W (S&W Fine Foods, Inc., San Francisco). 16¢.  
■ S. S. PIERCE CO. Red Label (S. S. Pierce Co., Boston). 15¢.  
■ STOKES (Francis C. Stokes Co., Vincenttown, N. J.). 13¢.  
■ SUNNY DAWN (Regent Canfood Co. and Sutter Canfood Co., San Francisco). 12¢.  
■ SUNRISE (American Stores Co., Philadelphia). 12¢.  
■ SWIFT'S (Swift & Co., Chicago). 16¢.  
■ TRUPAK (Haas Bros., San Francisco). 12¢.  
■ WELCHER (Welch Grape Juice Co., Westfield, N. Y.). 26¢ for 1 qt. (15¢).  
■ WHITE ROSE (Seeman Bros., Inc., NYC). 17¢.  
■ "YOR" GARDEN (First National Stores, Inc.). 13¢.

## Variable

► The following brands were variable — some cans Grade A and some Grade C.  
■ CO-OP Grade A (National Co-operatives, Inc., Chicago). 13¢. Eight of 16 cans tested were Grade A, 8 were Grade C.  
■ HUNT'S Supreme Quality (Hunt Foods, Inc., San Francisco). 11¢. Two of 4 cans tested were Grade A, 2 were Grade C.  
■ STOKELY'S Finest (Stokely-Van Camp, Inc., Indianapolis). 15¢. Two of 4 cans tested were Grade A, 2 were Grade C.

## Grade C

■ CO-OP Grade C (Consumers Cooperative Assoc., Scottsbluff, Neb.). 11¢.

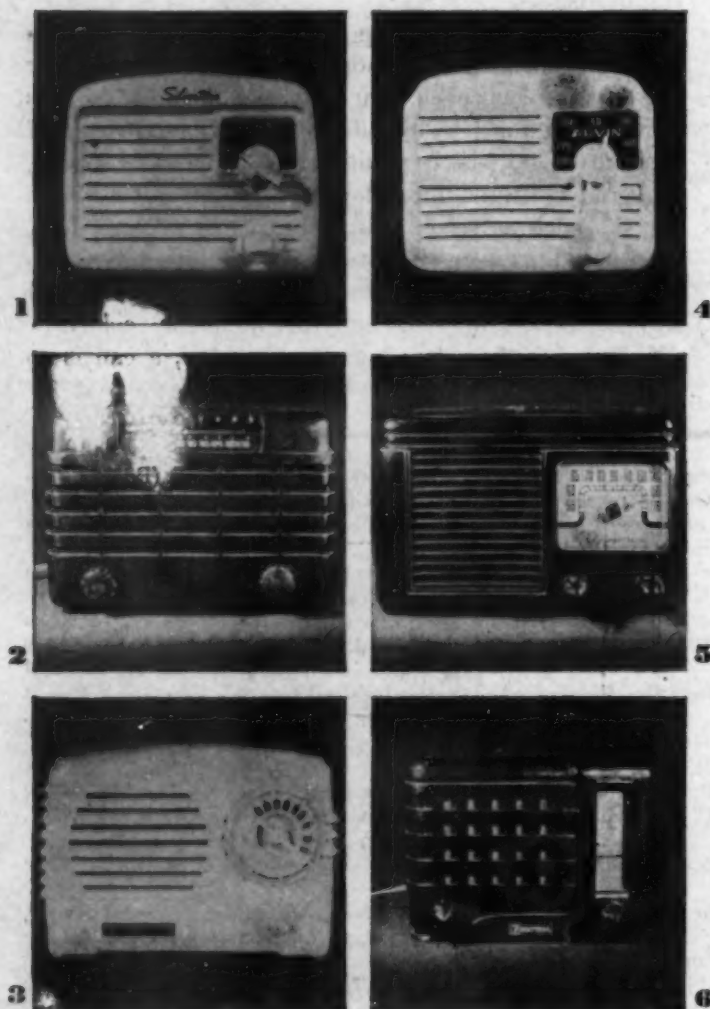
The quality of tomato juice depends on how carefully the tomatoes from which it is made are picked, sorted and processed. Modern processing methods permit color, flavor, and vitamin content to be retained, but if rotten or mushy parts are not removed before processing, the juice may have an off-flavor.

Even if the flavor is not affected, it is still possible to appraise sorting, washing and trimming methods by examining the juice microscopically for mold fragments. If these are present in more than 20% of the microscope fields examined, the juice is "Not Certified," according to United States Department of Agriculture testing standards.

Except for Co-op Grade A (16 cans tested) and a few brands of which CU shoppers were able to buy only two or three cans each, four cans each of the 45 brands were tested for CU by official U. S. Department of Agriculture graders. In addition to making mold counts, the graders tested for color, flavor, and consistency. Defects such as seeds, grit, skin, pieces of core, etc., were noted, as were the total solids and fill of the containers. There are three grades in tomato juice: A, C, and Off-grade, or Substandard. If flavor, color, or defects bring the score down to Grade C, a can is so graded regardless of total score.

# RADIOS

Midget radios do not perform as well as larger models, but are small, light, and inexpensive enough to be good buys. Out of seven brands purchased for test, however, only three made the "Acceptable" list



Radios number 1 and 2 above, plus the Arvin 444A (similar to both Silvertone and Arvin 444AM shown) were "Acceptable." All the others had to be rated "Not Acceptable" because of short-circuit hazard. For more on this, see the next page

1. Silvertone  
2. Tele-Tone  
3. Lafayette J50

4. Arvin 444AM  
5. Lafayette MC10  
6. Emerson

This report deals with midget radios — very small table models that weigh only two or three pounds, measure about 5x6x5 inches, and operate on house current (ac-dc). Their parts are essentially the same as those in larger table models, except for the smaller dimensions of some of them. A few of the models tested used "miniature" tubes that do all a regular-size tube does but are simpler in construction. Aside from the loudspeaker and transformer, in fact, all of these smaller parts can perform as efficiently and satisfactorily as larger parts. A minimum number of circuits, to be sure, can be provided in the very small space afforded. But the main drawback to the midget radio is that, with its small loudspeaker, transformer, and cabinet, it cannot furnish the fidelity and fullness of tone of larger models.

## Small, light, and inexpensive

Still, these midgets are a good answer to certain needs and wishes of a good many people. They are an ideal choice for those who do considerable traveling and want to hear their favorite programs from hotel rooms and tourist cabins, for they are small and light enough to slip into an overnight bag. They can be carried from room to room without too much trouble in those households where the budget won't cover radios both for Johnny, who has to hear "The Lone Ranger" before he goes to sleep, and for Great-aunt Sarah, who favors "Music for Dreaming." Midgets can easily be fitted into a very small space in bookcases, on kitchen counters or on bedside tables.

They also have the merit of being relatively inexpensive. All of the models reported on fell below the \$20 mark. A family which will be in the market for a radio-phonograph combination or an FM set when prices come within reach might well find a midget a good interim investment. Prices in this field have risen, however; the *Silvertone* was \$8.88 when CU first reported on it in February, 1946; it's \$14.30 now.

As to tone, the best of the midgets is not as good as good radios among the larger table models (to be reported on in a later issue). They are nevertheless comparable in tone to *some* of the larger table models, and better than many. Midget radios in general are far from



being a musician's instrument, which can reproduce sound without muddiness over a wide tonal range with a high degree of fidelity. Yet the \$14.30 *Silvertone*, when tried out in the CU laboratory with a good, large loud-speaker and transformer, gave a remarkable performance both as to tone and volume. The average consumer can't duplicate this experiment, but it serves to show what's good and what's not so good about the little sets.

All of the models tested had low sensitivity (ability to pick up weak stations) and poor interference rejection. The Sears catalogue, in a note to the description of the *Silvertone*, recommends a larger model "for continuous reception from stations more than 100 miles distant."

While there is no intrinsic reason why midget radios should present more electrical hazard than other types, none of those tested was completely shockproof. Because of short-circuit hazard, CU found it necessary to rate four of the seven models tested "Not Acceptable," although two of these four would otherwise have been placed at the top of the "Acceptable" list. The hazard could have been eliminated with a little more attention to design by the manufacturers. At present there are few models to choose from, but future competition in the field may provide a spur for improvements.

If you must have a portable radio (*Reports*, July) for use where there is no outlet, you pay for it with a certain amount of loss in performance. But if you are likely to use the radio mostly at home, then midget radios are much to be preferred. They are much cheaper, and music especially comes through more satisfactorily. Although only three of the midget radios tested, the *Tele-Tone* and both *Arvins* are provided with a carrying grip, and none has a handle, these radios are so small and light as to be just as portable as the so-called portables, in spite of the hank antennas present on the three "Acceptable" models which may make moving these radios a bit of an inconvenience. Except in those situations where no electrical outlet is at hand, midgets serve the same purposes as portables better and more economically.

### How CU tested

Unless otherwise noted, two samples of each model were tested. Of the seven models, only three — the Sears' *Silvertone* Cat. No. — 6002, the *Arvin* 444AM and the *Arvin* 444A — could be considered "Acceptable," and, as noted above, even these were not free from shock hazard. Two models — the *Lafayette* J50 and the *Lafayette* MC10 — were found to present such a serious hazard that they were rated "Not Acceptable" immediately and no further tests were performed.

As with other radios, CU tested these midgets according to established procedures. For its first test, each radio was played, using both standard recordings and a series of "off-the-air" broadcasts, before a blindfolded

*Continued on following page*

## WHAT IS SHOCK HAZARD?

*From the very nature of the electrical design of ac-dc radios, manufacturers must take precautions to remove the hazards of short circuit and electrical shock. The fact is, however, that many of them don't — as proved strikingly by CU's tests on midget radios, every one of which presented either a shock or short-circuit hazard.*

Some of the radios tested had exposed metal parts which, if touched by a person at a time when he is "grounded" \* would cause a small amount of current to flow through his body. This constitutes a shock hazard. Should the current be heavy enough and the exposed part easy to grip, it might be impossible to let go. According to Underwriters' Laboratories, the "let-go" current is about six ma (milliamperes) for the most sensitive adults. Regarding the amount of current that may cause death, Underwriters' Laboratories states, "for normal persons the current ought not exceed 30 ma." But one-tenth of one milliamperes is enough to cause the sensation of shock.

Among the midget models rated in this issue, CU found two — the *Silvertone* and the *Arvin* — which had shock hazard when operating on house current, with a measured current flow of less than two ma. These have been rated "Acceptable," but if you decide to buy one of these sets, buy it with the knowledge that you may get a shock from it, if you handle it under the circumstances described above. The shock will not be strong enough to kill you, or even to make your hand "freeze" to the part touched, but it may be strong enough to give you a jolt.

More serious in its possible consequences is the short-circuit hazard that exists if there is an exposed metal part which has a direct connection through the radio to one of the wires of the house current supply. Should a grounded wire touch this exposed metal part, radiator, etc., you might get a blown fuse, or, if a penny has been placed in the fuse receptacle (an extremely unsafe practice under any circumstances), you might have a fire on your hands as well. Furthermore, getting a shock from one of these sets could conceivably cause enough current to flow through your body to kill you. Such cases have been reported. Needless to say, midget radios presenting this hazard were rated "Not Acceptable."

The possibilities of any of these things happening range from a fair one in the case of a slight shock to a very remote one in the case of a shock serious enough to cause death. CU's stand in the matter is that so long as any hazard exists — when all hazards could be easily removed by the manufacturer — the consumer should protect himself by avoiding at least those products which might lead to the most serious consequences.

\* A person is "grounded" if he is touching an electrical "ground" — that is, if he is standing on a wet floor, touching a steam or water pipe or other plumbing fixture, or is in a tub of water.

jury of technically experienced listeners. The radios were then given extensive laboratory tests which, in part, consisted of a frequency response test, interference tests, output tests and sensitivity tests. By means of a standard Underwriters' Laboratory leakage tester, the radios were tested for short-circuit hazard and shock hazard.

### What to look for

Inasmuch as the models tested were found to vary greatly from sample to sample, it would be to the consumer's advantage to listen as critically as possible to at least two or three sets of any one model before making a purchase. On mail-order radios, where such listening is not possible, it is best to listen to a variety of stations as soon as the set arrives, so that the radio can be returned immediately if it is defective. It would be to the buyer's advantage further to purchase the radio from a dealer who will exchange it for another set if any defect becomes apparent at home that was not detected at the

time of purchase. Because of the generally low sensitivity of midget radios, consumers who live at some distance from broadcasting stations or who may want to tune into stations with weak signals would do well to purchase on approval.

In shopping unrated models that may come on the market or that may already be available in some parts of the country, the consumer should check the following items:

- 1) speech (listen especially for sibilants) should come through intelligibly
- 2) there should be no buzzes and practically no hum even with the ear to the speaker
- 3) the volume of sound should be strong enough to be heard even under somewhat noisy conditions of operation
- 4) there should be no whistles when tuning across the dial
- 5) the tuning band should cover the highest and lowest frequency stations operating in the area.

### Ratings of midget radios

#### acceptable

► The following radios were judged to be of about equal quality. Descriptions of tone and volume are comparative within the midget category only. Dimensions below are first height, then width, then depth.

■ — ARVIN 444AM (Noblitt-Sparks Industries, Inc., Columbus, Ind.). \$15.95. Ivory-painted metal cabinet (5½" x 6½" x 4½"). Also available in brown at \$14.95. Four miniature tubes including rectifier. Excellent tone, good volume; low sensitivity, poor interference rejection and poor automatic volume control. Shock hazard on all exposed parts of cabinet and chassis. Tuning range fell far short at high end of band on one sample. Combination dial pointer and tuning knob adjustable. Dial plate came loose on one sample. Hank antenna instead of loop. Underwriters' label.

■ — ARVIN 444A (Noblitt-Sparks Industries, Inc.). \$15.95. Available in brown at \$14.95. The chassis and speaker were exact duplicates of the *Silvertone* Cat. No. — 6002 (below); cabinet was same as that of *Arvin* 444AM. One sample tested.

■ — SILVERTONE Cat. No. 6002 (Sears-Roebuck). \$14.30 plus shipping charges. Ivory-painted metal cabinet (5½" x 6½" x 4½"). Four tubes including rectifier. Excellent tone and very good volume; low sensitivity, poor interference rejection and poor automatic volume control. Shock hazard on all exposed parts of cabinet and chassis. Tuning range fell far short at high end of band. Dial calibration poor, but readily corrected by shifting combination tuning knob and pointer. Dial plate came loose on one sample. Hank antenna instead of loop; antenna could be wound around tabs provided on back when radio was not in use. Underwriters' label.

#### not acceptable

○ — EMERSON 540A (Emerson Radio &

Phonograph Corp., NYC). \$19.95. Brown plastic case (4¾" x 6½" x 4¼"). Smallest of radios tested. Five miniature tubes including rectifier. Good tone, excellent volume; low sensitivity, poor interference rejection and poor automatic volume control. Only model tested that had dial lamp. Tuning range did not cover low end of band on one sample tested. Loop antenna. "Not Acceptable" because of short-circuit hazard on the screwhead and washer on the back cover. Otherwise would have rated first on "Acceptable" list.

○ — TELE-TONE 135 (Tele-Tone Radio Corp., NYC). \$17.95. Brown plastic cabinet (5¾" x 8¼" x 4¼") — 50% larger than *Emerson* (above). Five tubes including rectifier. Excellent tone, good volume; low sensitivity, poor interference rejection and poor automatic volume control. Tuning range did not cover low end of band on one sample tested. Loop antenna; no provision for connecting external antenna. Rated "Not Acceptable" because of short-circuit hazard on chassis, which is easily touched when radio is lifted by carrying grip. Otherwise would have rated second on "Acceptable" list.

○ — LAFAYETTE MC10 (Radio Wire Television, Inc., NYC). \$18.95. Mail order from Radio Wire Television. Black plastic cabinet (5½" x 8½" x 5½"). Five tubes including rectifier. Rated "Not Acceptable" because of short-circuit hazard on two lower mounting screws on back cover and on knob set screws.

○ — LAFAYETTE J50 (Radio Wire Television, Inc.). \$16.25. Mail order from Radio Wire Television. Flimsy, white plastic cabinet (5¾" x 8½" x 4½"). Five tubes including rectifier. Rated "Not Acceptable" because of short-circuit hazard on chassis which was completely exposed in rear of cabinet.

### You can't get really good tone from a small radio

*Consumers Union has been saying for years that at present a small radio cannot hope to have anywhere near as good tone as a large one. The deficiency is inherent and the moral is that the consumer should not expect to get from the small radio what it cannot give. The first bottleneck is the small size of the panel (baffle) on which the loudspeaker is mounted. The second is the small size of the loudspeaker itself. The third is the small loudspeaker (or output) transformer. Other working parts of a small radio — chassis and tubes — can be quite as good in performance as those of a big radio.*

*CU proved both sides of this matter by connecting a 15-inch coaxial test speaker (mounted in a large, heavy bass-reflex baffle) through a heavy transformer to the midget Silvertone chassis. Because a large loudspeaker is more efficient than a small one, the volume was considerably greater; and because a larger speaker in a good baffle can produce several octaves more of the bass notes, the tone was very much richer. The experiment dramatized both the potentialities of the chassis and the weakness of the speaker of a little set.*



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a report on

# VARNISHES

## AND PAINTS MADE WITH VARNISHES

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for technically minded *Reports* readers who wish to know about the special properties of these products for various uses and the factors that affect their quality

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The paint that's used inside a house, on walls and on furniture, is a different kind of animal from the outside house paint discussed in the previous article in this series (*Reports*, May). These inside coatings are varnishes, or paints made with varnish. Varnishes are also used for boats and for other exterior surfaces having special requirements not met by house paints.

They are made by heating resin and drying oil together until the mixture is properly blended and thickened, then cooling it, and adding thinner and drier — a complex and exacting process.

Tung oil or similar drying oils, such as dehydrated castor oil, oiticica oil, or some of the newer chemically modified linseed oils, are preferred for varnish making because they thicken more rapidly, make faster drying products, and produce good varnishes with cheaper resins than linseed oil does. Linseed, soybean, and fish oils, however, are also widely used, frequently in mixture with the preferred oils.

As for the resins, many are suitable for varnish making. The cheapest and most abundant is pine tree rosin and modifications thereof. Raw rosin makes soft, and often tacky, varnish but if the rosin is combined with a little lime or zinc oxide, a hard, brittle resin suitable for inexpensive varnishes results. Natural resins other than rosin are no longer used in great quantities; they have been largely displaced by synthetic resins. The best of these for household paints are the phenolic and the alkyd resins, which make hard, tough, durable, fast-drying varnishes. Often the phenolic resin is "modified" or "reduced" by blending with resins from rosin. The alkyd resins make hard, tough, durable varnishes that usually dry somewhat less rapidly than the phenolic resin varnishes.

Besides the oils and resins, varnish may also contain small proportions of metal soaps, driers, and other modi-

fying agents, added to speed drying of the varnish and for other purposes. Some varnishes may also contain pitch, wax, and various other ingredients to impart special properties.

The properties of varnish are governed largely by the relative proportions of oil and resin as well as by the kinds. The proportions are customarily expressed in gallons of oil to the 100 pounds of resin. Thus, varnish made with 20 gallons of oil and 100 pounds of resin is called a "20-gallon varnish" or is said to be "20 gallons long in oil." As a rule, the longer varnishes are in oil, the tougher and more durable they are. Shorter varnishes are harder, more lustrous, and dry faster, but they become more brittle and less suitable for outdoor use. And the better the quality of the resin, the shorter in oil the varnish may be without becoming too brittle. Varnish making, therefore, is largely a matter of choosing ingredients and proportions to produce the best compromise between toughness and hardness for each different use. No one varnish can be best for all uses.

The blending of resin with oil thickens the product so greatly that much volatile thinner must later be added to make the varnish fluid enough for the brush. Often the extent of thickening can be controlled by the time or temperature of cooking. Usually the shorter the varnish in oil, the thicker it is, and the more thinner it requires. To cheapen the varnish, the varnish maker may prolong the heating so that he can add more thinner.

### Varnishes for consumer use

Varnishes are used by themselves to make clear, transparent coatings and also as vehicles for enamels and some paints. The principal clear varnishes for consumer use are the following:

**Marine spar varnish** for boats or other surfaces fully exposed to the weather must be tough and durable even at the expense of hardness and speed in drying. The best are made of phenolic or alkyd resins at 45 to 60 gallons length in oil. Even the best marine spar varnish, however, is only one-fourth as durable as good house paint or exterior enamel.

**Spar varnish** for exterior surfaces partly sheltered from the weather, or for interior surfaces sometimes exposed to the weather or to dampness, may be somewhat harder and faster drying than marine spar varnish, but must still be reasonably tough. Spar varnish requires resin of good quality and may be 30 to 50 gallons long in oil.

**Floor varnish** for interior floors must be hard without being brittle in order to withstand traffic, and should dry fairly rapidly. It needs resin of good quality and is usually 20 to 30 gallons long.

**Interior varnish** for interior woodwork, such as wood trim and inside doors, may be made with less expensive resins that are not too brittle, and may be short enough

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— a technical report

in oil — 12 to 20 gallons long — to dry rapidly and be very lustrous.

**Dull or flat-drying varnish** is an interior varnish containing aluminum stearate, transparent pigment, or other "flatting agent" that makes it dry without much gloss.

**Rubbing or cabinet finishing varnish** is a harder and more lustrous kind of interior varnish, preferably fast drying, made to be rubbed with pumice stone or other fine abrasive to produce fine finishes for table tops or other furniture. The degree of gloss may be varied by the fineness of the abrasive. Rubbing varnish must be short in oil — 10 to 15 gallons long — and somewhat brittle.

**Sealer or penetrating varnish** is a fast drying varnish for sealing or priming wood or other porous surface before further varnishing or painting, or for making a finish without the luster and "fullness" provided by several coats of varnish. Sealers may be 0 to 10 gallons long in oil. (Varnish of 0 gallon length in oil is a spirit varnish — that is, a solution of resin in volatile solvent, such as shellac in alcohol.)

### Paints made with varnish

House paint is the only important kind of paint used about the house in which the nonvolatile part of the vehicle consists entirely of linseed or other drying oil. Other paints contain varnish or mixtures of varnish with drying oils. The varnish is used for a number of reasons. For one thing, it makes paint hard soon after it has dried, even without the help of sunshine. House paint made wholly with drying oil is said to dry in 16 to 24 hours, but the coating after that time is still relatively soft for many days. On the side of a house, the softness is of no consequence; it is far more important that the coating remain as long as possible free from undue brittleness, despite its exposure to the weather. Interior surfaces, if they are to be put in service soon after painting, need coatings that harden quickly. These surfaces can put up with rather brittle coatings.

Varnish also changes the working properties of paint greatly. House paint slips easily under the brush, can be spread either thinly or thickly, stays in place well until it dries, works well and dries well even in fairly cold weather, and leaves slight brush marks that improve appearance on imperfectly smoothed surfaces. Paints made with much varnish, on the other hand, flow somewhat sluggishly, spread readily only at the coating thickness for which they were designed, tend to run or

sag on vertical surfaces, become stiff and slow drying in cold weather, and conform exactly to the contour of the surface when they dry, so that any blemishes in the surface are revealed.

Paints made with much varnish or other thickened vehicles are called enamels. The terms "paint" and "enamel," however, are not always used consistently, for one manufacturer may sell a "floor paint" that is essentially the same as the "floor enamel" sold by another maker. One speaks of "flat wall paint," though it is made with varnish, but "semigloss wall paint" and "semigloss wall enamel" are used interchangeably.

White lead and zinc oxide, considered necessary in house paints made with linseed oil, may be completely absent in the paints and enamels made with varnish. The resin in the varnish paints serves in somewhat the same way as white lead and zinc oxide in oil paint, namely, to overcome the undue softness of the drying oil and harden the coating. Resin, however, hardens much more rapidly and eventually tends to make the coating brittle. White lead and zinc oxide in small proportions are used in some porch paints and zinc oxide may be used in wall paints and enamels.

The opaque pigment in white or light-colored varnish paints may be either zinc sulfide or titanium dioxide or a mixture of the two. For house paints, titanium dioxide is preferred, but the two are equally good in paints made with varnish.

**Porch paint** for use on porch floors of wood or concrete should contain as much opaque pigment as house paint does. The vehicle should be essentially a mixture of good floor varnish and raw linseed oil to give extra toughness to stand weathering.

**Floor paint** for indoor use differs from porch paint in that it contains varnish without any raw linseed oil. Some manufacturers sell a paint for use either indoors or outdoors, the directions often calling for addition of one pint of linseed oil to a gallon of the paint for outdoor use.

**Gloss enamel for furniture** is essentially an interior varnish containing enough opaque pigment for hiding power and color. Opaque pigments of high hiding power should be used so that the percentage of total pigment can be low. Such enamel can be spread in thin coats on a surface previously covered with enamel undercoater and sandpapered until perfectly smooth; the enamel will then dry with a mirror-like gloss.

**Enamel undercoater** has a composition generally similar to that shown for flat wall paint except that the pigments and the varnish are chosen to make a coating that primes wood well and can be sandpapered quickly and smoothly soon after it has dried.

**Gloss enamel for walls** is designed for surfaces that have not been smoothed perfectly with an undercoater and careful sandpapering. It spreads more easily in thicker coats than furniture enamels do.



**Semigloss enamel** differs from gloss enamel for walls in that it contains a greater proportion of pigment and less nonvolatile oil. After it has been applied and dried, the coating contains barely enough oil and resin to fill the spaces between particles of pigment. The surface of the coating has a very slight roughness that gives the semigloss appearance.

**Flat wall paint** contains even more pigment and less nonvolatile oil than semigloss enamel does. After application, the coating of flat wall paint is slightly porous and rough. It will not stand such vigorous washing as semigloss or gloss enamel.

### Emulsion paints

Emulsion paints found little favor in the United States until wartime shortages struck the oil-paint market. They are inferior in quality to the paints and enamels made with varnish, but superior to other water paints such as casein paint and calcimine.

In the older varnish paints, the thickened varnish is dissolved in mineral spirits or other volatile solvent and the pigments are dispersed in the solution. After application the solvent evaporates, leaving the pigments and varnish intimately mixed while the varnish hardens.

In emulsion paint the thickened varnish is emulsified in water in very small droplets, about 0.00004 inch or less in diameter. To keep the droplets from joining together, the water must contain an emulsifying agent, generally casein or other colloidal substance. The water must also contain ammonia or other mild alkali to keep the casein in solution. The pigments, titanium dioxide or zinc sulfide for opacity and extending pigments for bulk, are dispersed in the water. In addition, such preservatives as sodium tetrachlorophenate and borax are added to prevent deterioration of the casein. After the emulsion paint has been applied, the water and ammonia evaporate, the droplets of thickened varnish coalesce among the particles of pigment, and the pigment becomes dispersed in the thickened varnish as it hardens to a firm coating.

Long-oil alkyd resins similar to those from which varnish paints are made are commonly used for emulsion paints. Other resin varnishes, however, are practicable provided they are insoluble in mildly alkaline water. The dried coating retains the casein and other emulsifying agents which, though no longer soluble in water after the ammonia has evaporated, are nevertheless hygroscopic, that is, they absorb and are softened by water. Moreover, the pigments are of grades that are more readily dispersed in water than in oil. The coating formed by emulsion paint, therefore, is not identical with and is somewhat inferior to the coating formed by ordinary varnish paint.

Emulsion paints may be made with proportions of pigment, nonvolatile vehicle, and volatile thinner (water) similar to the proportions of gloss enamel for

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walls, semigloss enamel, or flat wall paint. The flat emulsion paint is fully equal and possibly superior in appearance to the older form of flat wall paint. The gloss emulsion paint, however, is distinctly inferior in degree of gloss and in smoothness of surface. Most of the emulsion paints on the market are flat paints; they have probably gained a permanent place in American painting practice. There are a few gloss emulsion paints on the market, some of which are suitable for exterior use on masonry, concrete, or stucco. They cannot be generally recommended for exterior wood or masonry. When a white or light-colored paint is needed on creosoted wood or over asphalt coatings, however, the gloss emulsion paints can often be used whereas an oil paint would be promptly discolored by the creosote or asphalt.

### Other water paints

Below the emulsion paints in quality, particularly in resistance to water, are the casein paints. Typical casein paints contain no drying oil or resin, though it is easy to emulsify oil or varnish in them, thereby producing paints with continuous gradation in properties from emulsion paint to casein. In typical casein paint, casein or a similar protein such as soybean protein is dissolved (technologists may prefer to say "colloidally dispersed") in water with the aid of alkalies, and pigments of the sort used in emulsion paints are dispersed in the solution. After application, the evaporation of the water leaves the casein in a jelly-like condition to bind the pigments together in a coating. Once dried, the casein does not dissolve again readily but it is swollen and softened by water.

All casein paints on the market are flat paints. It is technically possible to make gloss casein paints but they cannot compete economically with gloss oil paints. Most casein paints are used indoors for walls and ceilings, though some are made for those exterior surfaces for which the emulsion paints are suitable. The emulsion paints, however, are more durable than the casein paints on exterior surfaces.

Calcimine is similar in composition to casein powder paint except that animal glue is used in place of casein. Calcimine is the least costly paint for walls and ceilings. The glue, however, is readily redissolved by water, hence calcimine cannot be washed and is easily damaged by mere splashing of water upon it. On the other hand calcimine presents excellent appearance and is easily removed before repainting.

# Batteries for hearing aids

They come in a variety of sizes and voltages; CU has rated 30 "A" and "B" batteries on the basis of service life

Almost 800,000 users of battery-operated hearing aids will be spending an estimated average of \$20 each this year for battery replacements. The quality of those batteries is, naturally, of vital concern to the hard-of-hearing.

Hearing aid batteries are available in many sizes and voltages. The smallest sizes are designed for units in which the microphone, amplifier and batteries are in a

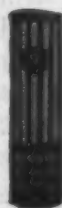
single wearable case — the "one-piece" unit. But large sizes are more economical and do not require as frequent replacement as do the small batteries. Tests performed on four sizes of the conventional zinc-cell type "A" batteries showed that the largest batteries tested gave over seven times the service of the smallest size, and for only twice the cost. The next-to-largest size cost as much as the large size, but gave only two-thirds as much service as the latter.

The "two-piece" instrument, so-called because the batteries are housed in a separate case, can be made to operate with any size of hearing aid battery. Several brands of "one-piece" hearing aids, such as *Sonotone*, *Radioear*, some models of *Acousticon*, and the new *Zenith* models, can be furnished with cords which make operation with large size batteries possible if economy is more important than compactness. And other brands can be adapted for using large batteries, if a competent and willing technician can be found to make the necessary adapter.

## Hearing aid voltages

The voltage required by a hearing aid depends on the design of the instrument, which is, in turn, partly dependent on the degree of hearing impairment for which

## Ratings of batteries



► Listed in order of average number of hours of service life of the samples tested. Prices are those paid by CU shoppers, not necessarily list prices.

**acceptable**

**"A" Batteries, 1½ volts**

► Dimensions refer to height and diameter.

### ► Size 4x1¼ inches

■ — **RADIOEAR L728** (E. A. Myers & Sons, Mt. Lebanon, Pa.). 25¢. Not dated. 126 hours.

■ — **GENERAL E728** (General Dry Batteries, Cleveland). 25¢. Not dated. 112 hours.

■ — **ACOUSTICON 35-G** (Acousticon, NYC). 27¢. Not dated. Made for Acousticon by General Dry Batteries. 107 hours.

■ — **SONOTONE RX 800-S** (Sonotone, Elmsford, N. Y.). 27¢. Not dated. 104 hours.

■ — **ZENITH Z-1** (Zenith Radio Corp., Chicago). 25¢. Not dated. 70 hours.

### ► Size 4x1½ inches

■ — **ACOUSTICON 34-G** (Acousticon). 27¢. Not dated. Made for Acousticon by General Dry Batteries. 84 hours.

■ — **OTARION GP-1** (Otarion, Chicago). 25¢. Not dated. 81 hours.

■ — **EVEREADY 1052-P** (National Carbon Co., NYC). 30¢. Dated. 80 hours.

■ — **GENERAL EP728** (General Dry Batteries). 25¢. Not dated. 74 hours.

■ — **BURGESS TE** (Burgess Battery Co., Freeport, Ill.). 25¢. Dated. 72 hours.

■ — **AUREX A-10** (Aurex Corp., Chicago). 27¢. Not dated. 72 hours.

■ — **SONOTONE X800-S** (Sonotone). 27¢. Not dated. 69 hours.

### ► Size 3x1½ inches

■ — **GENERAL GP600** (General Dry Batteries). 18¢. Not dated. 46 hours.

■ — **OTARION GP-2** (Otarion). 20¢. Not dated. 44 hours.

■ — **EVEREADY 1040-P** (National Carbon Co.). 25¢. Dated. 42 hours.

■ — **SONOTONE X803** (Sonotone). 20¢. Not dated. 41 hours.

### ► Size 2½x1¾ inches

■ — **GENERAL EP917** (General Dry Batteries). 13¢. Not dated. 16 hours.

■ — **OTARION GP-3** (Otarion). 15¢. Not dated. 14 hours.

### ► Size ½x1¾ inches, mercury type

■ — **MALLOTT RMB4** (P. R. Mallory & Co., Indianapolis). 35¢. Not dated. 37 hours.

### ► Size ½x1½ inches, mercury type

■ — **MALLOTT RMB3** (P. R. Mallory & Co.). 30¢. Not dated. 21 hours.

## "B" batteries, 45 volts

► The following "B" batteries, while not exactly alike in size and shape, are interchangeable in most hearing aid battery cases. If you buy a new brand from this list, be sure to check to see that it fits.



■ — **EVEREADY 455-P** (National Carbon Co., NYC). \$1.75. Dated. 558 hours.

■ — **BURGESS XX30E** (Burgess Battery Co., Freeport, Ill.). \$1.75. Dated. 528 hours.

■ — **AUREX B-10-1** (Aurex Corp., Chicago). \$1.75. Not dated. 444 hours.

■ — **RADIOEAR 985** (E. A. Myers & Sons, Mt. Lebanon, Pa.). \$1.75. Not dated. 435 hours.

■ — **GEM 904-S** (Gem Ear Phone Co., NYC). \$1.75. Not dated. 432 hours.

■ — **SONOTONE 945** (Sonotone, Elmsford, N. Y.). \$1.75. Not dated. 417 hours.

■ — **GENERAL EP903** (General Dry Batteries, Cleveland). \$1.75. Not dated. 414 hours.

■ — **ACOUSTICON 45-GW** (Acousticon, NYC). \$1.75. Not dated. 376 hours.

■ — **ZENITH Z-30** (Zenith Radio Corp., Chicago). \$1.75. Not dated. 363 hours.

■ — **RAY-O-VAC PN30** (Ray-O-Vac Co., Madison, Wis.). \$1.75. Not dated. 340 hours.



it is intended. "A" batteries used in hearing aids always have a voltage of  $1\frac{1}{2}$  volts. "B" batteries, however, have voltages ranging from 15 volts to 90 volts.

CU tested ten brands of 45 volt "B" batteries, all about the same size. Of these, the dated brands, *Eveready* and *Burgess*, gave the best and most consistent performances in terms of both length of useful life and average voltage during life. The *Zenith* batteries, which were among the shortest-lived, showed the greatest difference between samples, with a range of 300 hours to 425 hours of service life. And the *Ray-O-Vac* samples did not do a great deal better.

Just as in the case of flashlight and radio batteries, here again CU recommends purchase of dated batteries whenever possible. Buying undated batteries involves the risk of getting batteries which have deteriorated excessively on the shelf. Those who use hearing aids know, of course, that hearing aid batteries are made with standard plugs, so that it is usually possible to switch to practically any brand.

### Mercury batteries

Two sizes of the very small, war-developed *Mallory* (mercury) batteries, were included in the tests made on "A" batteries. These batteries are real improvements over the standard dry cell; they give about the same service life as conventional dry cells of four times their size. Performance of the mercury batteries is characterized by a comparatively steady voltage during life, and an abrupt drop in voltage when the batteries are exhausted; thus, their useful life ends without much warning, and the user may be left without replacements. These batteries are not yet in very wide use.

"A" batteries must be replaced much more frequently than "B" batteries. It is advisable, therefore, to buy enough "A" batteries to last through the expected life period of the "B" battery, at the same time that the "B" battery is purchased. And CU recommends that the practice of rotating "A" batteries (using a different one each day) be followed conscientiously, as the longer recovery period given in this way to each battery increases the number of hours of service the batteries will give.

### How CU tested

Tests consisted of determining how long it took batteries to drop to their lowest useful voltage. By the use of resistors chosen according to test specifications of the American Standards Association, the drain on the batteries was fixed at approximately that of the normal load in an average hearing aid, and batteries were discharged daily for 18-hour test periods. Two samples of each brand were tested. Quality was judged on the basis of the number of hours of service rendered by the samples.

## gardening

# Weed killing time

CU's garden consultant offers some advice

on how to use 2,4-D to destroy lawn weeds

The best time to kill lawn weeds with 2,4-D varies from region to region. In the northern states, it is late summer to early fall. Weed seed is not germinating then, and cool fall weather favors permanent grasses. In the two months following the application of 2,4-D, the turf can be thickened with the aid of fertilizer, and newly seeded patches will become well-established before cold weather. Early in the spring the lawn can be fertilized again, so that about two months later, when crab grass starts, the turf will be thick; with high cutting then, very little crab grass can germinate.

Farther south, where Bermuda grass is predominant, the situation is different. There 2,4-D should be applied in late spring or summer, for the heat-loving Bermuda grass will replace weeds even faster than crab grass. If 2,4-D is applied in the fall, just as Bermuda grass is becoming dormant, annual bluegrass and other cool



weather weeds will take the place of those that have just been killed.

Thus, the use of 2,4-D must be carefully timed to produce a weed-free lawn. Moreover, 2,4-D must always be accompanied by applications of fertilizer to encourage the permanent grasses, and supplemented throughout the year by other good management practices — such as high cutting — which tend to keep the grass thick and healthy.

Most of the permanent grasses are unharmed by several times the amount of 2,4-D required to kill weeds, but bent grass, especially on closely clipped putting greens, is more sensitive. In some cases it has been killed, although in others it has withstood the standard application without injury, even on greens. If there is a significant amount of bent grass in your lawn, therefore, try 2,4-D on a small scale first. And until more is known about the solvents used in liquid formulations, it will be safest to use a water-soluble powder — a sodium, ammonium or morpholine salt of 2,4-D (*Reports*, April). Don't be dismayed if bent grass looks dead at first; it often recovers completely. Never use 2,4-D on newly planted stolons.

### Hit them when they're down

Reports from different sections of the country vary as to the difficulty of killing particular kinds of weeds. However, there is fairly general agreement about the sensitivity of *lawn* weeds. Fortunately most weeds can be killed at a time favorable to permanent grasses. When this is not the case, a compromise has to be made. Summer weeds like pennywort and heal-all, whose thick mats may kill the grass by fall, should be treated during the summer. If clover is to be saved, spraying must be done in summer, although resistance of many weeds is high at that time, and this opens the area to a heavy infestation of crab grass. Since it is easier to re-establish clover than to get rid of crab grass, the decision is usually made in favor of fall applications.

The statement found in most manufacturers' directions — that 2,4-D should be applied when the temperature is 70° F. or over — is misleading. Weeds must be killed when they are sensitive. And the temperature at which weeds are most easily killed varies. Hot weather weeds such as broad-leaf plantain do die quickly at temperatures of 70° or more, but certain weeds such as wild onion and chickweed *must* be treated when temperatures are below 70°. Others, such as buck-horn plantain, are completely indifferent to the temperature.

It is a good practice to use a separate sprayer for 2,4-D. An excellent though expensive (\$9.25) pressure sprayer for spot treatment is the *Shur-Shot Sprayer* (made by the Milwaukee Sprayer Manufacturing Co., Milwaukee).

Fertilizer should be applied when foliage is dry,

immediately before or after using 2,4-D, and at 1 to 1½ pounds of nitrogen per 1000 square feet. This means 20 to 30 pounds of a 5-10-5; 16 to 25 pounds of an activated sludge such as *Milorganite* (a 6-2-0), etc. A mixture of ten pounds of *Milorganite* and 15 pounds of 5-10-5 is better than either one alone.

If the weeds are so predominant that large bare areas or very thin turf may be left after treatment, grass seed should be sown. In the Washington, D. C., parks this is done immediately after the 2,4-D has dried on the foliage, so that the seed germinates and the grass starts growing under the protection of the dying weeds. But it may be safer for home gardeners to wait about two weeks, in case excess spray has been allowed to wet the soil.

### Treat before they go to seed

A weed's stage of growth is the most important factor in determining how readily 2,4-D will affect it. Usually a weed is most easily killed when it is growing rapidly and has developed a sizable leaf area. In the case of dandelions, however, you should be guided more by maturity — as shown by the deeply cut leaf margins — than by amount of foliage. Of course it is desirable, if possible, to treat weeds before they go to seed. Some annual mat-forming weeds, such as chickweed,\* henbit and certain veronicas, are controlled best in early spring by preventing seed production.

If a weed can be killed at more than one season, the period when it is best treated depends on other factors. The stage of growth of the permanent grasses at the time when 2,4-D is used is the most important factor in a lawn's ability to remain free of weeds, once they have been killed. If possible, time the application of 2,4-D and fertilizer to coincide with or just to precede a period of vigorous growth by the permanent grasses.

Another important factor in timing is the prevalence of weedy grasses. If crab grass, goosegrass, or paspalum are known to prevail, don't spray in early summer, unless the basic grass is Bermuda grass. Annual bluegrass, where it prevails, fills in faster than Kentucky bluegrass after very early spring or very late fall treatments. In the shade, in some regions, nimblewill may replace other weeds unless the turf grasses can be thickened quickly. Such considerations as the time of day, and how long before or after treatment the grass is cut, make no difference. But it is important to spray when the foliage is dry, and, except when using oily liquids, to spray at least four hours before a rain so that the chemical can dry on the leaves.

### Time and results

It takes two or more years of 2,4-D treatment, backed up by a good fertilizer program, to produce results. If the first application is made in early fall, on grass dense enough to be thickened quickly with



fertilizer, the next treatment may wait until the following fall. But if wild onion is present, another application must be made very early the next spring. This makes two treatments in the second year.

### Spray vs dust

The best way to use 2,4-D is as a spray (*Reports*, April). It can also be applied in dust form (*Weedust*, *Esteron Dust*, *Weedeath Ester Dust*, etc.), or in dry mixtures with fertilizer (O. M. Scott & Sons, Marysville, Ohio, \$3.50 to treat 2500 square feet). Dusts are good for spot treating a few weeds, but the drift from large-scale treatments often kills valuable plants. Dry mixtures with fertilizer are convenient, but may injure nearby trees and shrubs whose roots are mingled with grass roots. Also they slow or prevent germination of grass seed for some time afterwards.

The standard solution is 0.1%, as manufacturers direct. The standard rate is five gallons per 1000 square feet, or *enough to wet the foliage thoroughly without excess run-off*. If this requires less than five gallons, the solution may be strengthened proportionately, but the exact rate is not as important as exact timing. Distribution should be even. With a hand sprayer it is better to go lightly over a small area three or four times than to spray heavily once. Choose a time when the air is quiet, and shield valuable plants to protect them from drift. Never spray bare soil.

### How to save money on grass seed

Fertilize with two to three pounds nitrogen per 1000 square feet, and sow a mixture having not more than 10% nurse grass (red top is best) at 2 to 2½ pounds per 1000 square feet — half the usual rate. To facilitate seeding, mix with sand. Early next spring fertilize again, and cut high all summer; the turf may be thin at first but it will improve later. Don't sow commercial mixtures at this rate — they never contain enough permanent grass seed. Buy pure seed and mix it yourself.

For the best kinds of pure seed for your needs, consult the bulletin on lawns put out by your State Agricultural service. In the Northeast, bents or fescues can replace the expensive Kentucky bluegrass. Golf supply houses are recommended sources for pure seed. The Golf and Lawn Supply Corp., White Plains, New York, is an excellent one, and fills mail orders.

In *Tailor Made Lawn* (\$2 for 50 square feet), grass seed and fertilizer are incorporated between two layers of cellulose wadding, which is to be laid on prepared soil and watered. Contrary to the impression given by the advertising, the New Jersey Agricultural Experiment Station does not recommend the product as a whole, but only the theory and method of sowing the seed. The grass mixture itself is not good, and is not the same as that used in experiments. The product is not recommended.

## SENSITIVITY OF LAWN WEEDS TO 2,4-D

o indicates consistent resistance to 2,4-D; x indicates weeds which are killed with difficulty; xx indicates weeds which are easily killed, at least in one season of the year. Abbreviations for seasons of greatest sensitivity: Sp, spring; S, summer; F, fall.

o	Bluegrass, annual ( <i>Poa annua</i> )	
o	Bugleweed ( <i>Ajuga reptans</i> )	
xx	Buttercup ( <i>Ranunculus</i> sp.)	late F
xx	Chickweed, common ( <i>Stellaria media</i> )	early Sp, late F
xx	Chickweed, mouse-ear ( <i>Cerastium</i> sp.)	early Sp, late F
xx	Clover, white ( <i>Trifolium repens</i> )	early Sp & F, late F
o	Crab grass ( <i>Digitaria</i> sp.)	
xx	Dandelion ( <i>Taraxacum officinale</i> )	any time but early Sp
xx	Gill-over-the-ground or ground ivy ( <i>Nepeta hederacea</i> )	late Sp, S
o	Goosegrass ( <i>Eleusine indica</i> )	
xx	Heal-all ( <i>Prunella vulgaris</i> )	S, early F
xx	Henbit ( <i>Lamium amplexicaule</i> )	early Sp, late F
xx	Knotweed ( <i>Polygonum aviculare</i> )	late Sp, S
	Use an ester, or two to three times the standard concentration of soluble salts.	
xx	Medic, black, or yellow trefoil ( <i>Medicago lupulina</i> )	
xx	Moneywort ( <i>Lysimachia Nummularia</i> )	late Sp, S
o	Nimblewill or bush muhly ( <i>Muhlenbergia Schreberi</i> )	
xx	Onion, wild ( <i>Allium</i> sp.)	early Sp
	Use an ester of 2,4-D, or two to three times the standard concentration of soluble salts.	
o	Paspalum ( <i>Paspalum</i> sp.)	
xx	Pennywort ( <i>Hydrocotyle rotundifolia</i> )	S, early F
xx	Plantain, broad-leaf ( <i>Plantago major</i> )	S, early F
xx	Plantain, Rugel's ( <i>Plantago Rugelii</i> )	S, early & late F
xx	Plantain, buckhorn or narrow-leaf ( <i>Plantago lanceolata</i> )	Any time
xx	Purslane, milk, or spotted spurge ( <i>Euphorbia maculata</i> )	S, early F
x	Sorrel, red or sheep ( <i>Rumex acetosella</i> )	late Sp
	Very difficult; use an ester of 2,4-D.	
o	Sorrel, wood ( <i>Oxalis</i> sp.)	
xx	Speedwell or veronica ( <i>Veronica</i> sp.)	early Sp, late F
xx	Strawberry, false ( <i>Duchesnea indica</i> )	Any time
xx	Vervain, prostrate ( <i>Verbena bracteosa</i> )	
x	Yarrow ( <i>Achillea millefolium</i> )	early Sp

### REFERENCES

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- Tentative Report, Policy Committee on New Herbicides of the North Central States Weed Control Conference, 1947.
- "Turf Weed Control with 2,4-D," by Dr. Fanny-Fern Davis, National Capital Parks, Dept. of the Interior, Washington.

# *The tragedy of* **ABORTION**

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**Better handling of the abortion problem could save several thousand lives a year, but it can be brought about only by organized public support**

Almost every day in every general hospital in every state of the Union, one or more legal "therapeutic" abortions are performed by licensed doctors. They involve surgical procedures which must meet the requirements of rigidly prescribed laws of the state. Those laws almost uniformly state that only if the pregnancy threatens the very life of the woman can it be legally interrupted. A common professional precaution, which has come to have almost the force of law, is that at least two physicians, with professional standing in the hospital where the abortion is to be performed, must certify in writing that the continuation of pregnancy is a danger to the life of the woman.

Yet for every abortion legally performed in a hospital, one or more illegal operations are performed in private doctors' offices or "abortion mills." Many of these abortions are done quite skillfully by doctors who devote themselves entirely to the practice. An equal or larger number are performed by unskilled persons. Accurate statistics are impossible to obtain for obvious reasons, but a guess is that from 300,000 to 700,000 illegal abortions are performed annually in the United States. Again it is impossible to estimate the consequences of such abortions in terms of impaired health or even death. But such figures as have been compiled, and they are not inconsiderable, generally agree that about 25% of maternal deaths are caused by abortions. It is estimated that possibly 8000 women die annually from complications caused by illegal abortion.

And for every death probably four or five women are invalidated for varying periods of time — some permanently. Among the physical consequences are menstrual disorders, chronic infections of the pelvic region, and sterility. And the last can be a tragedy to a woman who subsequently may find circumstances suitable for the raising of children. The emotional consequences of abortions are also of some importance, since many women suffer feelings of guilt, chronic anxiety or feelings of depression following an abortion, however pressing the motive for it may have been.

It is obvious that considerable numbers of good

American citizens consider the laws of the state an impediment to their personal freedom and are willing to flout the laws to safeguard their freedom of choice as to when they will bear a child. It is also obvious that many doctors agree with their patients and either help them to find a physician-abortionist, or shrug their shoulders sympathetically, or suggest exercises or an abortifacient drug.

## **The drugs won't work**

The fact is that no known drug or combination of drugs taken by mouth can induce an abortion. The further fact is that many drugs taken for this purpose may *poison the woman and endanger her health*. Many women are convinced that they have successfully induced abortion either with an abortifacient drug, or by hot baths, violent exercises, intercourse at the expected menstrual period, horseback riding, cathartics, douches and enemas. Again, the truth is that if menstruation is induced by these drugs or exercises, it means that the woman was not pregnant but simply had a period delayed by some other cause. Or if there is a true pregnancy, and bleeding and abortion are induced, it must be put down as coincidence. Finally, the drugs or catharsis or exercise *may* in rare instances induce bleeding in a pregnant woman without causing an abortion. The pregnancy goes on despite the temporary bleeding.

Other desperate and dangerous undertakings include the injection of drugs like *Lysol* into the uterus and the introduction of all sorts of foreign objects, which may not only infect but perforate the uterus.

Abortion cannot be successfully induced without a "curettage" (scraping the womb), and cannot be induced with even reasonable safety unless the curettage is done by a competent physician under suitable conditions. Most doctors, knowing this, discourage resort to these drugs and devices and either recommend a physician-abortionist or persuade the woman to accept the pregnancy.

In some states it is almost impossible to obtain the services of a competent physician-abortionist. In others,



## health & medicine

Harold Aaron, M. D.—Medical Adviser

the cost for such service is so high that only higher income patients can afford it. The woman with a low income, who is unable to afford a physician-abortionist, either purchases abortifacient drugs or seeks the help of an unskilled lay abortionist. In some cases, the woman of better than average means and social standing in the community may be able to prevail upon her physicians to certify that her life is threatened by her pregnancy. For an illegal abortion by a physician the cost may be as high as \$1000 or more.

The belief that our present laws on abortion are unenforceable as well as unjust is shared by many prominent physicians, social workers, educators and community leaders. Said Dr. Howard C. Taylor, at the Conference on Abortion Problems sponsored by the National Committee on Maternal Health in 1942:

"Attempts to solve the problem of illegally induced abortion present to date a record of failures. First of all, the medical profession has notably failed, for although the performing of abortions has been forbidden to physicians since the time of Hippocrates, nevertheless the abortionist is drawn principally from the ranks of this profession. The State has done little better for, in spite of the fact that penalty has been piled upon penalty, abortion is a crime perhaps more frequently committed now than ever before. Finally, one may question whether the Church has had much more success in preventing this practice among its adherents."

The statement by Dr. Taylor epitomizes what every physician knows — that the abortion laws are openly flouted by physicians and patients alike. As to the inequity in the laws, the most pointed evaluation has been made by another distinguished physician, Dr. Frederick J. Taussig, Professor of Clinical Gynecology and Clinical Obstetrics at Washington University: "It is the duty of the physician to see that unjust and unenforceable laws are modified in accordance with the *real* convictions of the people and that underlying social conditions leading to the prevalence of induced abortions are corrected."

Recognition that abortions are most frequent among married mothers of low income (about 90% of illegal abortions are performed on married women, most of them with children), and awareness that there is a connection between the size of a family and the need for its

limitation are growing among enlightened physicians and laymen concerned with public welfare.

But Dr. Taussig's injunction to physicians to modify an "unjust and unenforceable law" may seem rather ironic to those who are familiar with the doctor's role in legislation. The history of medical societies and medical organizations gives one little hope that they will ever be prime movers in wholesome public welfare reform or legislation. Action on unjust laws, even when affecting public health, will have to come from public groups.

Just prior to World War II there were efforts in some European countries to legalize abortion generally, while as early as the '20's, Russia tried an experiment along these lines. The Russian experiment is characterized by Dr. Taussig as the first serious attempt in any country and in any age to solve the problem, which hitherto the world has accepted either as an uncontrollable evil, or by vain punitive methods has driven underground to flourish. But after about a ten-year trial, Russia abandoned legalized abortion. There were both social and medical grounds for this reversal. Of the latter, the most important was that too many women suffered from complications such as chronic low grade inflammation of the pelvic regions and permanent sterility. The risk of such complications became greater as the number of abortions performed on a woman increased.

### Some approaches to the problem

While there is no easy solution to the abortion problem there are certain approaches which can be explored. One of these is a continuous movement toward more flexible or permissive laws.

The lines for such a movement to follow have been sketched by Dr. Taussig. He suggests that therapeutic abortions should be permitted where the mother is physically depleted by recent or frequent child bearing or by inadequate income; or is mentally defective or clearly irresponsible as in the case of minors; or is a victim of incest or rape; or is mentally disturbed to a marked degree.

He has written a kind of bill of rights in the form of essentials for a proposed law. Two of its major points:

1. Consideration for the health of the mother first; secondarily, for the unborn fetus as a living organism.
2. Preservation of the best interests of the family as a whole, including proper rearing of existing children.

Better sex education and wider dissemination of reliable contraceptive information for families which are unable or unwilling for economic or psychological reasons to have more children, would unquestionably prevent a great many abortions.

These are some immediate approaches to the abortion problem. More basic approaches will have to recognize and deal with those economic and social factors which make the raising of a family too precarious for too many people.

# The nervous bladder

Psychiatrists find a link between emotional

upsets and urinary disorders, including that eternal problem of childhood — bed-wetting

That emotional activity can influence the functioning of organs is now a commonplace in medical experience and thinking. Throughout the centuries, observant doctors and laymen have been impressed by many cases of the interdependency of mind and body. It is only in the past generation, however, that these observations have been organized and understood from the point of view of an integrated theory of human behavior.

Psychiatry today is no longer a medical specialty concerned with the study and treatment of the insane. It has become a valued technique for the study and treatment of many everyday nervous disorders, and indispensable for some. It has also provided new insight into the management of ailments once considered purely physical or "somatic" in origin. As the resources of psychiatry have been applied to common somatic disorders, many aspects of these disorders previously not understood have become clearer, and more comprehensive therapy has resulted.

Thus, medical experts who have studied such common disorders of bowel behavior as constipation and colitis have become convinced that in some persons there is a close connection between these disorders and the emotions. Studies of peptic ulcer employing psychological as well as physiological and chemical methods have yielded new information about this still mysterious disorder. Similarly, study of psychological aspects of abnormalities in the functions of the heart, skin, urinary tract and other organs has resulted in an ever-growing pool of knowledge that is having increasing influence on medical practice.

## Specialization: it's not enough

Doctors who diagnose and treat diseases or disorders of one organ are called specialists. Specialization is, of course, inevitable in medicine because no single doctor can master its entire domain. But narrow specialization, in which organs are considered almost as though they were detached from the body, is not good medicine. The modern specialist must not only be thoroughly familiar with the organic diseases in his specialty, but must also be aware that his patients' emotional life may affect the course of even purely somatic disease and that, in some disorders, the emotions are of decisive importance in their effects.

No one expects a specialist to be a psychiatrist as well as an expert in a special region of the body. But good present-day medical practice does require him to recognize that many organ disturbances in his specialty may require the help of psychiatrists or psychiatric social workers; and that, in other disorders, therapy may be more effective if some understanding of the patient's personality and emotional problems can be arrived at.

## A few cases in point

A case in point is provided by examination of some common disorders of the urinary tract. Organic disorders in which there is some difficulty in urination are very common — among them, gonorrhea, cystitis, pyelitis, nephritis, prostate infections and growths. Careful examination of the urinary system and the urine, plus specific treatment by drugs, diet or operation, are required for successful management of these predominantly somatic disorders. Yet even here, it is remarkable how the patient's emotional makeup can influence the outcome of treatment.

And in another large group of disorders in which urination symptoms are prominent — and in which there is no organic disease — proper psycho-therapy may be of decisive importance. It is now believed, for example, that psycho-therapy is the most effective treatment for that common disorder of childhood known as enuresis. This is the term for bed-wetting which occurs after the age of three or four, when bladder control should be complete. In very rare instances enuresis may be caused by an organic disease of the urinary tract or nervous system. But in the overwhelming majority of cases, enuresis is a symptom of a disturbed psychological or emotional relationship between the child and parents.

As pointed out in an article by Dr. Joseph Lander (*Reports*, June, 1946), bladder training can ordinarily be accomplished smoothly if the parents' attitudes toward the child's habits are calm and matter-of-fact. The training may be completed in different children at different times. If the nervous system matures early, bladder control may be acquired at 12 or 15 months of age; if more slowly, control may not be acquired until three or four years of age. Anxiety by the parents to see urinary control before the child is ready for it may lead to



disturbances not only in his urinary function, but also in his personality.

The older child who has more or less *persistent* enuresis (an *occasional* bed-wetting at night may occur with a well-adjusted child at times of stress) should be treated by a physician who understands that enuresis is not a disease but a symptom of an emotional condition in which parental attitudes are almost certainly of primary importance.

Reliance on drugs, diet, water restrictions — or, worse yet, bladder irrigations, electrical treatment or circumcision — obviously will not cure the disorder.

### Symptom or cause?

When drug treatment is successful it is not because of any virtue in the drug itself, but because of the effect of suggestion and of the personality and manner of the doctor who prescribed the drug. Usually such treatment has only temporary success. When coercive or physical measures or operations are carried out by parents or doctors, the child may remain dry for short periods, but recurrences of bed-wetting are frequent and the child may even acquire a more severe emotional disturbance. Such treatments of enuresis can never be successful because they are simply directed at a symptom, not at a cause.

Childhood experiences involving faulty parental attitudes may also be responsible for nervous conditions in later life in which urinary disturbances are prominent symptoms. This is probably the history of many adults who are unable to urinate in the presence of others; or who suffer agonies at a party or public gathering out of fear that leaving the room will expose the fact that they have to get rid of "unmentionable excretions."

Also common are those cases of nervous upset in which frequency of urination is associated with interruption of sleep. Insomnia caused by nervous tension is common enough and there are many causes for both the tension and the insomnia. It is simply assumed by some persons that insomnia, or interruption of sleep, is caused by a need to urinate several times nightly. And it is true that in some organic diseases of the prostate, heart or kidneys, and in metabolic disorders, this need may exist. However, if there is no accompanying nervous disorder, sleep is easily resumed. If it is not, there is reason to suspect that the urination frequency and the insomnia alike are associated as symptoms of an underlying emotional disturbance.

### Some psychiatric findings

As to the why of this association, psychiatric observation provides the following interpretation. It is well known, to begin with, that sexual excitement often causes a desire to urinate even when there is little urine in the bladder. Conversely, a full bladder may enhance sexual excitement. Psychiatry has found that many

persons have difficulty falling asleep or staying asleep because of a fear (usually unconscious) that certain activities which were once forbidden to them in childhood may occur in sleep. Or they may fear that sleep will bring with it sexual fantasies or wishes which are unacceptable to the conscious personality. These fantasies or wishes cannot be completely suppressed, however; they continue to be active in the mind. The close association of the urinary tract with the genital organs makes the former a suitable vehicle for expressing, in a disguised way, repressed sexual wishes.

Thus, the person with chronic insomnia who feels that he has to urinate frequently may be demonstrating the power of repressed sexual wishes to express themselves (through barriers erected by the mind) by influencing the functions of an organ — in this case, the bladder.

Sleep interruption may occur even when there is little urine in the bladder. For the slightest rise in urinary pressure may be enough to act as a basis for the development of tension in the genital area. And this tension, in turn, may give the dream states normally occurring in sleep an erotic or sexual quality sufficient to disturb the sleep of a person with a "nervous" bladder.

Thus may a simple muscular sac like the bladder reveal the nature and intensity of emotional states. The example is one of a number. And the moral is not that this specific analysis applies to any given case; but that it suggests a *kind* of explanation which may be overlooked, and which psychiatric practice has found relevant to many cases.

### Poison Ivy

Three years ago Consumers Union published some good advice for poison ivy sufferers. The advice — to try the hot water treatment for poison ivy itch — has proved so popular that reprinting it is becoming an annual affair. The treatment consists simply of bathing the affected areas with hot water — water as hot as the skin can stand. Those who have tried it have got complete relief from itching for as much as several hours after each application of the hot water.

The hot water treatment has been recommended for years in Farmers' Bulletin No. 1166 of the U. S. Department of Agriculture. CU first passed on the recommendation after itchy staff members tried it and found that it worked far better than any of the soothing applications recommended by physicians. Why doctors generally are unaware of — or at least do not call attention to — the hot water treatment is hard to understand in view of the widespread suffering which poison ivy usually causes.



The cellarless house can be of almost any style, modern or conventional, big or little. Above are two cellarless examples

## The case for the cellarless house

The cellar gets credit for lots of virtues it doesn't have. The authors point out some drawbacks

The opinion is widely held that a house needs a cellar or, at any rate, that the well-built house always has a cellar or at least an air space beneath the first floor. This is an opposition report.

As with most controversial questions concerning building, there is no simple or universal answer to this one. Many factors are involved: the contour and drainage of the site, the nature of the ground, the climate, and local custom, which is a mixture of all three plus a little folklore. There are, of course, some circumstances in which a cellar may be obviously desirable. Building a cellar may be the easiest way, for example, to cope with a sloping site. Or drainage problems created by a site's contours may sometimes argue for a cellar. It is also possible that zoning restrictions may, in some cases, specify cellars.

But when people say that a cellar is necessary, they seem usually to have in mind one or more of the following supposed advantages:

- (1) It will keep the house dry.
- (2) It will keep the ground floor warm.
- (3) It will provide abundant and essential storage space.
- (4) It will provide an ideal place for the heating system, laundry, etc.
- (5) It costs no more to build, particularly where winters are cold, because foundation walls have to be dug down below the frost line anyway.

Photos above from *The Book of Houses* by Breines and Dean, copyright 1946 by Crown Publishers.

Architectural and construction considerations hardly relate to the question, inasmuch as any kind of house, large or small, modern or conventional, can be built with or without a cellar. Let us take up the supposed advantages.

### Does the cellar keep the house dry?

The notion that the cellar keeps the house dry is doubtless due to the fact that so many cellars are wet. The homeowner who dismally views his flooded or damp cellar after a heavy rain is grateful that his first floor at least is dry, and imagines vaguely that this is attributable to the existence of the cellar. This suggests the man in the story who carried the bricks because it felt so good when he put them down. Actually, the first floor remains dry mainly by virtue of its being above the water level, and this is true whether the cellar is there or not.

The fact is that a house built directly on the ground in accordance with the modern method illustrated (see diagram on page 313) can be perfectly dry at all times.

### Does it keep the house warm?

The argument that the cellar keeps the ground floor warm and comfortable is answered along the same lines; again, it is largely a matter of contrast. Since cellars are normally cold, they get the credit for keeping the rest of the house warm. Actually, however, a considerable quantity of fuel is consumed in keeping the floor above a cellar comfortably warm. In those cases where



the cellar itself is warm, this fuel consumption is usually due to a faulty or uninsulated heating system which is losing its heat to the foundation walls.

The reader should understand that we have no quarrel with anyone who prefers a cold cellar or, for that matter, with anyone who has some reason for spending money for the fuel to keep his cellar warm. The point in question here is whether a cellar is necessary in order to keep the ground floor comfortable in winter. And the answer is that the cellarless construction illustrated would provide complete winter comfort under any conditions found in the United States or Canada.

The traditional notion that an air space in the form of a cellar or a crawl space is needed below the ground floor for winter comfort was disproved in tests made by the U. S. Bureau of Standards. The tests showed that if there is an air space below a floor, the air space itself must be heated to achieve a comfortably warm first floor. On the other hand, a properly insulated floor slab laid directly on the ground can also make for a comfortable first floor.

These tests were described in some detail in a report issued March 10, 1945, which said in summary: "Information gathered during these tests indicates that, as far as warmth or heat loss is concerned, a concrete floor may as well be placed on the ground as to be laid over an unheated crawl space." A wood floor, of course, cannot be laid directly on the ground; before insulated concrete was available, air spaces or cellars were necessary to prevent deterioration of the lumber. A cellar may be desired for other reasons, but it is certainly not necessary for warmth.

## Cellars and storage

Perhaps the strongest argument for the cellar is that it is the only practical way to get the amount of storage space most families require. (A similar point is made in regard to attics, which will be discussed in a subsequent article.)

The cellar often does provide a plenitude of storage space, but because it is usually dark and involves going up and down stairs, a lot of inaccessible junk which otherwise would probably be discarded accumulates there. The fact is that the average cellar makes a very poor storage space, indeed. It is better than no storage space at all, but it is obviously less desirable than comparable space at ground level — where the storage room can be more accessible, better lighted and ventilated, and where there are no cellar stairs to trip on.

## Where to put the heating plant and laundry

There was a time when practically all heating was accomplished by wood or coal burning furnaces. Then, a cellar was usually needed both because of the nature of the systems (gravity circulation of the heating medium) or because of the desire to get the fuel stored as far out of sight as possible. Also it was often easier to deliver coal down into a cellar from the truck. But to-

*Continued on page 314*

### CELLAR CONSTRUCTION COSTS based on a unit of 20x36 feet

Item	Quantity	Unit Cost	Total Cost
Machine excavation....	213 cu. yd.	\$ .90 cu. yd.	\$202
Hand excavation.....	9 cu. yd.	2.00 cu. yd.	18
Backfill.....	29 cu. yd.	1.50 cu. yd.	43
Footings.....	7 cu. yd.	15.00 cu. yd.	105
Concrete blocks (10")..	924 blocks	.60 each	554
Waterproofing.....	93 sq. yd.	1.50 sq. yd.	140
Drainage.....	130 lin. ft.	.30 lin. ft.	39
Concrete floor.....	612 sq. ft.	.45 sq. ft.	275
Lally columns.....	2	12.00 each	24
Chimney to first floor..	1 M brick	70.00 M	70
Cellar stair.....	1	65.00 each	65
Cellar windows.....	2	8.00 each	16
Lumber (girders, beams, plates, sills, subflooring, bridging and labor)	1800 bd. ft.	150.00 M	270
Rough hardware (nails, etc.).....			20

**TOTAL \$1841**

### Optional additions (sometimes required by building code)

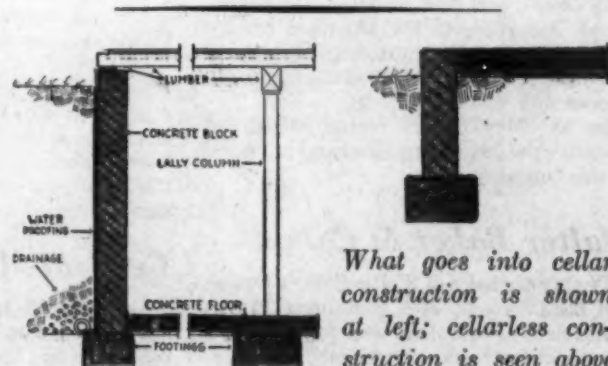
Concrete blocks filled...	7 cu. yd.	\$8.00 cu. yd.	\$56
Outside exit from cellar	1	125.00 each	125
Cement plaster on ceiling	68 sq. yd.	2.00 sq. yd.	136
Cellar floor drain.....	1	75.00 each	75

**TOTAL \$392**

### SLAB ON GROUND CONSTRUCTION based on the same unit

Leveling site and preparation (bulldozer)....	1 day	\$75.00	\$75
Trench excavation.....	50 cu. yd.	2.00 cu. yd.	100
Backfill.....	20 cu. yd.	1.50 cu. yd.	30
Footings.....	6 cu. yd.	15.00 cu. yd.	90
Concrete blocks (8")...	370 blocks	.50 each	185
Floor slab			
3" stone concrete			
1" Celotex-pitch mopped			
3" stone concrete with 6" x 6" mesh.....	720 sq. ft.	.90 sq. ft.	648
Concrete blocks filled...	3 cu. yd.	8.00 cu. yd.	24

**TOTAL \$1152**



What goes into cellar construction is shown at left; cellarless construction is seen above

day's gas or oil-fired furnaces are as clean and good-looking as your refrigerator, and need not be hidden away. Furthermore, because they use mechanical circulation, these furnaces do not have to be below the floor.

The same goes for the laundry. The elimination of the cellar stairs should be greeted by all housewives who have to do any of their own wash in basement laundries. Modern laundry equipment installed in a properly planned kitchen, requires little extra space and permits the housewife to engage in other tasks while the laundry is being done.

### The cellar and building costs

In order to compare the two types of construction, with cellar and without, the costs for a unit 20x36 feet—enough to provide for a four-room house—have been calculated and are presented herewith. These costs are based on current prices prevailing in the Westchester County area of New York. Local adjustments can easily be made by any contractor.

It must be remembered in comparing the two, that,

when no cellar is built, space will have to be provided above grade, within the building, for such things as one might expect to house in the cellar. Enough space for the heating equipment and laundry should be gained by the elimination of the cellar stairs. Additional storage facilities will probably be required but, if properly designed, should not take up too much space.

### That "extra" room?

Many people have found that by using their cellar properly for its normal purposes of heating, storage, laundry, etc., they have enough extra room to provide for a children's play room, or a surplus room of some sort. Generally, this occurs in larger houses where comparisons will indicate a considerably greater cost for the construction of a cellar. Usually any of these uses in a below-grade cellar are a rationalized use of "found" space, and could probably have been provided for above grade at little or no extra cost, and would be considerably more desirable there from the point of view of light, air and general convenience.

## For the People CONT'D FROM P. 280

the oil was neither germicidal nor self-sterilizing. The Mennen Co. denied the allegations of adulteration and misbranding, and the case came up for trial. After the court had heard part of the Government's proof, Mennen Co. consented to a decree of condemnation, and the court ordered that the oil be disposed of by mixing it with other fats for industrial purposes under the supervision of the U. S. Marshal.

### Brock Candy Co.

The Brock Candy Co. did not contest F&DA's charge that certain of its candy consisted of a filthy substance, and the company was fined \$2000.

The candies in question were *Century Crisp Peanut Butter Filled Candy*, *Crystal Jelly Drops*, and *Seal Sweets Assorted Jelly Drops*. According to F&DA, these candies contained insects, rodent hairs, fragments of rodent excreta, pieces of wood fibers, miscellaneous dirt, live beetles, etc.

See the *May Reports* for an account of deceptive packaging practiced and admitted by this company.

### Walter Baker & Co.

Twenty-six bales of *Walter Baker's Dayton Van Lec Chocolate*, each containing 20 ten-pound slabs of chocolate, were found to contain insect fragments and larvae.

The chocolate had been shipped by Walter Baker & Co. to Runkle Co. in Ohio. The Runkle Co. admitted that part of the

chocolate was in the condition described. A judgment of condemnation was entered, and the product was released under bond with the order that the filth be eliminated, or, if this was not possible, the product destroyed.

### National Biscuit Co.

This well-known manufacturer of cakes and cookies was fined \$1000 because certain of its products contained rodent hairs, insects, beetles, and larvae. Included were: *Nabisco Graham Crackers*; *Sugar Honey Maid Graham Crackers*; *Nabisco Devil's Food Squares*; *Waffle Cuplets*; and *Nabisco Macaroni Twigs*.

The Government claimed that these products had been prepared under such unsanitary conditions that they were contaminated with the filth described above.

### A&P

Canned sardines labeled *Seine Brand California Sardines Packed by Martinez Food Cannery, Ltd.*, and *California Natural Style Sardines . . . The Great Atlantic & Pacific Tea Co., New York, N. Y. Distributors*, shipped by the Martinez Food Cannery from California to Missouri and North Carolina, were found to be decomposed. The cannery was fined \$200.

### General Mills Inc.

General Mills Inc. did not contest F&DA's charge that plain flour and pastry flour in its possession had been stored under unsanitary conditions and that the product contained rodent excreta, rodent hairs, and urine. The court released the flour under bond on

condition that it be denatured with fish oil and converted into stock feed under the supervision of the Federal Security Agency.

### Stokely-Van Camp, Inc.

Stokely-Van Camp, Inc. admitted that almost 16,000 cans of their peas fell below government standards of quality. The peas were labeled *Pearl Brand Selected Early June Peas*. Stokely admitted that the charges were true, and the peas were released under bond to be relabeled under supervision of F&DA.

### Canute Water—a hair dye

The Canute Co., manufacturer of the highly advertised hair dye, *Canute Water*, can no longer call its product "pure," nor can it intimate that it is "water."

In "cease and desist" Order No. 5234, the FTC states that the preparation consists of a silver nitrate solution to which the user adds a tablet of sodium thiosulfate, commonly known as "hypo." Successive applications of the product make gray hair darker, according to the findings, which explain that its action is to form a thin metallic coating on the outer surface of the hair (see p. 289).

The "cease and desist" Order was issued after consideration including testimony and other evidence taken before a trial examiner. All of the FTC commissioners participated in the decision, which also states that the use of the name *Canute Water* as a brand name, or the use of the word "water" as part of its brand name, will be permitted only if it is clearly and conspicuously stated in immediate conjunction with a statement that the preparation is a silver nitrate hair dye.



# How you can save on gasoline

The right kind of fuel,

correct engine care and smooth driving all make for more mileage

Although it is true that the cost of gasoline plus tax in a car's lifetime approaches the cost of the car itself, the maximum possible *savings* on gas are less sensational. You can figure it out. If your car runs at 20 miles to the gallon instead of 16, you will save one dollar every 400 miles, or \$100 in 40,000 miles (with gas at 20¢ per gallon).

That might come to \$25 or so a year for the motorist who is on the road a lot. But most motorists want to get the best mileage possible from the cars they are driving anyway. That necessitates at least a nodding acquaintance with such things as octane number, vapor pressure, the pros and cons of premium-priced gasoline.

## First the carburetor

It is probably most helpful of all to know a little about how a carburetor works, and the difference between a "rich" mixture and a "lean" one. Under running conditions, a mixture of nine parts of air (by weight) to one of gasoline is so rich that it will hardly burn; a mixture of 16 to 18 parts of air to one of gasoline is as lean a mixture as can be counted on to ignite in the cylinders.

An idling engine receives a very rich mixture, though not much of it, from the carburetor. There is some saving, therefore, in idling the engine as little as possible after it has warmed up.

At *steady* speeds between 20 to 60 mph or so, the carburetor usually meters a very lean mixture. But each time you "step on the gas," extra fuel — several cubic centimeters of it — is supplied by the carburetor for the acceleration. The steady driver gets better mileage.

When the throttle is opened three-quarters of the way or more, the carburetor automatically enriches the mixture to the point at which it gives full power rather than best economy. The driver who avoids tramping the throttle wide open gets far better mileage. And so does the driver who uses his brakes as little as possible.

But good mileage further depends upon engine condition, good ignition, maximum spark advance, and general absence of the drags that come from poorly adjusted brakes, tight bearings or under-inflated tires. Good engine condition (with respect to gas mileage) requires an air cleaner unrestricted by dirt, carburetor jets unenlarged by wear, a carburetor float level that is

not too high, and fuel pump pressure that is not excessive. Proper sealing of the valves and rings is essential.

Last, but not least, gasoline mileage depends on car speed and consequent air resistance. Very roughly, each added ten-miles-per-hour between 30 and 70 mph subtracts about two miles per gallon. This is at steady speeds; the effort to maintain a driving speed of, say, 50 instead of 40 mph, including necessary accelerations and slowdowns, is much more costly.

Good mileage is a result of teamwork between car and driver. A car can be tuned to maximum economy. But a competitive, moody driver will always get poor mileage.

## The gasoline itself: knock and lock

For the general run of gasoline, the characteristics which are most important to the summer motorist are octane number and vapor pressure. In cold weather, the motorist should be even more interested in the distillation characteristics of the fuel, since these determine how his engine starts and how quickly it warms up. He is probably interested at any time in whether "Ethyl" or premium-priced gasoline is worth its extra cost, generally two cents per gallon.

Octane number is a measure of the knocking characteristics of gasoline: the higher the number, the more knock-free the gasoline is likely to be. Current gasolines average between 72 and 76 octane for regular fuels, and between 76 and 80 for premium fuels.

In summer, the chief reason for preferring one gasoline to another revolves around your own engine and its octane requirement in use. Unless the compression ratio of your car has been specially altered, or unless it was originally designed to use premium gas, you will gain very little by stopping at the Ethyl pump. In fact, two Ethyl Corporation engineers stated, late in 1945, that, "for the first time, regular-grade gasolines probably have sufficient antiknock quality on the road to satisfy at least 90% of the cars." It is felt by several experts that an engine which today requires premium gas to stop its knocking should receive mechanical attention.

No single laboratory test can be used as a measure of the knock characteristics of a motor fuel; the tendency to knock varies from engine to engine, and depends on a variety of factors. Therefore, two fuels with the same antiknock rating may behave differently in your car;

and the same fuel will often behave differently in two cars of the same make and model. If you have a knock problem, it is worth shopping around for the *regular* gasoline that will give the best results.

Knocking, of the sort referred to here, is caused by too rapid a pressure rise after the gas is ignited in the cylinders. The spark should be timed so that a mild — and harmless — ping is produced momentarily on full-throttle acceleration. Heavy knocking (detonation) causes a loss of power and is harmful.

Besides using higher octane fuel, knocking may be avoided by opening the throttle only to the point where knocking begins, or by retarding the spark, or, of course, by cleaning carbon deposits from the cylinders.

One reason that high antiknock quality is costly to build into a gasoline is that it must be done without raising the fuel's vapor pressure; unless this precaution is taken, vapor lock is likely to occur in hot weather, during hard driving, or at high altitudes — that is, gasoline may vaporize in the carburetor or supply lines, interrupting the flow of fuel and stopping the car until the gasoline temperature drops.

Vapor pressure is adjusted by the refiners seasonally, and to some extent, geographically, and according to altitude. In the North, the vapor pressure of gasoline runs about 25% higher in winter, and is raised, but not so much, when cold weather strikes the West and South. If your car locks in summer, try switching brands. If it locks in the spring or late fall, you may be a victim of a delayed or early seasonal change-over. Premium-priced gasoline has no advantage with respect to vapor lock.

### WATER INJECTION

During the war it was found that power could be gained and knocking stopped in aircraft engines by injecting water into the cylinders at full load. This slowed down the burning speed of the fuel and controlled the rise of pressure in the cylinders. Now several water (or water and alcohol) injection devices are being offered to motorists as accessory installations. Such devices offer worthwhile improvement only under two conditions:

1. where the engine is run on low-cost, low-octane fuel, relying on water (alcohol) injection to prevent knocking at full or nearly full throttle;
2. where the compression ratio of the engine has been raised so that ordinary or premium-priced gasoline would knock very badly in it.

Water must be injected only at certain times and in controlled amounts; the adjustments require an expert; the supply of fluid must be refilled periodically; and special provision must be made for operation in freezing weather.

## the shape of things

by Elliot F. Noyes

# Squaring the circle

Clock manufacturers seem bound to try it

Every morning, the alarm clock is the first thing to meet your blurry gaze. What you see in this first defenseless moment could have a profound effect on your mood for the rest of the day; it might send you back under the covers with a shudder, or persuade you that there is a sensible and pleasant outside world. The manufacturers of alarm clocks, obviously, carry a heavy national responsibility.

Because the hands of a clock move in a circle, the circular form of most clocks is a direct expression of an important function, and is therefore the most reasonable shape. Since clocks on desks, mantelpieces, and bedside tables are supposed to stand still, this circular mechanism must be mounted so that it will not roll. The best design in the group of clocks under consideration is the *General Electric Herald* No. 7H160L, in which the basic form has been expressed most directly. This clock is a simple circular shape supported by two rods which run from front to back and are molded integrally with the plastic case. The face, which is luminous, has well-shaped and legible letters on a dark brown surface, with greenish luminous dots, a brass, sweep second hand, and a red alarm-setting device — all of which give color accents and result in a twinkly and pleasant effect. The shape of the hands is also good. For clock watchers, this model is an agreeable one to watch.

### ... and now for the squared circle

There is a fairly large gap between this design and all the others. While not deserving of any prizes, the *Seth Thomas Pyper* E855-006 has some good ideas in it. In this design the basic circle has been abandoned for a square, on which the numerals of the dial are mounted in a circle. The clock face itself is tilted slightly backwards, which makes it much easier to see from above. The "crystal" is shaped like a flat pan with shallow sides, and protrudes about a quarter of an inch in front of the case. This is a reasonable and somewhat novel treatment, and might have been made more interesting if it had been handled vigorously. On the back of the case, the controls have been sunken so that nothing protrudes beyond the case, permitting the clock to sit flat against a wall. On the negative side, the case is



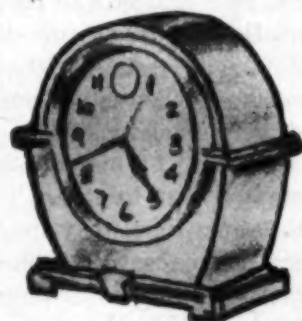
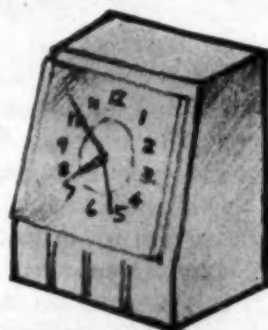


### GENERAL ELECTRIC

*The Herald is well designed; its function is expressed directly in its form*

### SETH THOMAS

*The Pyper's case is an unattractive color, but the tilted face is easy to see*

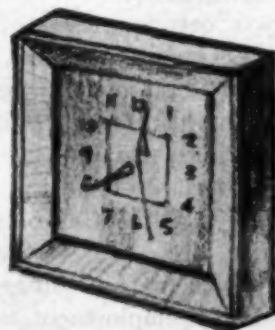
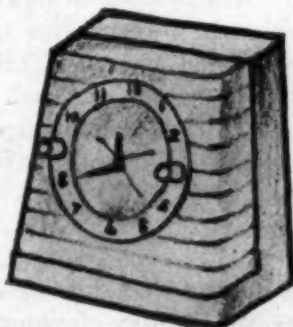


### SENTINEL

*A mass-produced item like the Lyric may be meant to look like an heirloom, but . . .*

### TELECHRON

*It's too bad that a good, clear face is framed in a fussy, over-styled case*



### SESSIONS

*The 460W's square dial is framed like a picture, complete with fake grain, and gilt*

made of a rather unpleasant yellowish plastic and has some annoying little lines indented in the front at the base, while the dial face is an unattractive pale chocolate color with badly scaled hands.

In many of these models the circular clock face and works have been mounted or framed in a larger flat-bottomed shape which has then been tricked up in some way or other to give what the manufacturer hopes is "eye-appeal." Most of these are simply dull and uninteresting shapes. A few of them exhibit specifically bad tendencies in design and are worth looking at more carefully.

The *Sentinel Lyric* SA14, to take an example, is a fine demonstration of the futility of trying to imitate fine old English silver in a cheap mass-produced item. This little case is silver-plated and has moldings at base and sides to make it look at home with your heirlooms. A yellowy surface, a shiny metal strip around the face, and a poorly printed black and white dial combine to make it look cheap, phony, and pretentious.

### The very latest style

The *Telechron Switch Alarm* 8H61 is interesting as an example of a clock which has been very consciously "styled" with some of the latest design mannerisms. It has a single-piece plastic case with a series of indented horizontal lines over its full height. The numerals are red indentations on a flat circular brass band, and there are two cream-colored control knobs mounted on this band; the hands are black and very well shaped. The clock face alone is far better than most. It is too bad that the plastic case in which it is mounted could not have been handled simply.

The *Sessions* 460W combines several cheap tricks to produce a really tawdry result. A square dial has been framed like a picture, with a small square picture frame and glass. The wood of the frame has fake, painted wood grain and gilt paint on it, and the dial face itself has gilt and bad red numerals on it. The glass is held in very insecurely by a wedge at the bottom. The total effect is thoroughly cheap and unpleasant. Another *Sessions* clock strives to be pompous and impressive by means of a large case which spreads out sideways in bulbous forms and strange moldings, trying very hard to make a small clock look large and expensive.

The strange failure in these clocks is that there is, with the exception of the *GE Herald* No. 7H160L, no attempt to be really direct and simple. In all other cases there is a furious striving for effect, and the effort to be decorative has been overpowered with banality, pretentiousness, and heavy-handed detail. There is certainly plenty of opportunity in clock design for the introduction of imaginative, gay, and interesting treatments which still adhere to the basic principles of good design; but in this group of models tested by CU there is very little success.

*Sketches by the author*

# Bread & Butter

A review of some economic signs and por-

tents of interest to consumers as of the end of the first half of 1947

## I Cracking props

The economy entered the second half of 1947 amidst signs of a downward drift. Industrial production — the basic economic barometer — had been declining slowly for a number of months. As measured by the Federal Reserve Board, the over-all volume of industrial production had receded from a postwar peak of 190 in March to 186 in May and to below 185 in June.

The decline in factory production was more marked. Factory output went down from 198 in March to 192 in May and about 190 in June. Both the production of durable and nondurable goods was affected. Despite continuing high consumer demand, the output of durable goods was off from 225 in March to 220 in May. Production of nondurables declined from 177 in January to 170 in May.

The downturn in production is, of course, still minor in magnitude. But in the face of record-breaking national income it is a reflection of the increasing imbalance between purchasing power and the flow of goods coming from the factories of the nation.

The fact is recognized by the business press. Recently, the financial weekly — *Barron's* — pointed out that "the special forces which have been sustaining activity for so long now threaten to subside all together, and not too many months hence." The article went on to state that when the props holding up the inflationary boom collapse, there will be "sharp price cuts, inventory losses and unemployment."

A major prop during the past year has been the stocking up of goods and merchandise by manufacturers, wholesalers and retailers. Inventories were accumulated partly to fill depleted supply pipelines and partly to cash in on inflationary price increases. In 1946, business purchases for inventory amounted to ten billion dollars, an all-time record; and they hit an even higher rate in the first quarter of 1947.

This increase in inventories has been taking place in the face of shrinking purchasing power, as rising living costs have priced more and more consumers out of the market for almost everything except essentials. Supply

pipelines are now beginning to spill over and voluntary accumulation of inventories is shifting to involuntary overstocking of goods. When inventories begin to back up, new orders to manufacturers will tend to drop off, production will decline and men will be laid off. The recent downturn in factory production marks the beginning of the process.

Other props, such as deferred wartime consumer demand and foreign trade, are also beginning to weaken. Part of the deferred demand has been fulfilled and part has been destroyed by the inflationary destruction of purchasing power. Foreign countries are running out of dollar resources and the present unprecedented volume of exports cannot be maintained very much longer.

As these props crack, the boom will be punctured, first in one area of the economy and then in others. If they all fall apart at about the same time, they may generate an explosive economic chain reaction. Commenting on this possibility, *Barron's* said: "Warnings of depression are more subdued . . . The beast has persisted so long in refusing to arrive, that his actual appearance may catch unawares even some of those who cried wolf . . . Yet there is still no reason to expect that the wolf will not come, and when he does, he will be all the hungrier."

## Steel and prosperity 2

Current steel shortages, hampering the production of autos and other consumer durable goods and delaying the expansion of oil and natural gas pipelines, have set off a controversy in Washington between the steel industry and government experts. Government economists contend that a full employment economy will require more steel than the industry can produce with its present capacity. Industry spokesmen maintain that present demand is abnormal and that in the future demand will be satisfied with 70% to 80% of current capacity.

Louis H. Bean, economic adviser to the Agriculture Department, estimates that high level employment in 1950 would require the output of more than 100 million



ingot tons of steel. Peak wartime production was 90 million tons in 1944. The present effective capacity of the industry is around 85 million tons.

Another study made by the Bureau of Labor Statistics gives two estimates for the amount of steel that will be needed to sustain high level employment in 1950. One estimate — 98 million tons — is based on the assumption that industry will concentrate on making consumer goods. The second estimate — 120 million tons — is based on the premise that much of national income will go into plant investment and that heavy construction will flourish.

The steel industry has backed up its position by persistently refusing to expand its basic steel-making capacity. It refused to expand capacity before the war, and large-scale government building of steel plants had to be carried through in an effort to overcome the chronic shortage of steel products. Now Senator James E. Murray of Montana has introduced legislation to force expansion of steel capacity through the medium of Reconstruction Finance Corporation loans to smaller steel producers. Senator Murray said that if the industry fails to expand, "industrial production and recovery would be held back and as many as 20% of the necessary job opportunities would not be available."

Consumers have a vital stake in the debate. If present steel capacity is insufficient to meet the needs of a full employment economy, consumers will be affected as wage and salary earners. At the same time, low steel capacity in relation to demand will mean continued high prices for most of the manufactured goods, particularly durable goods, that consumers buy.

### 3 Prices: durable goods

Coal prices were increased 60¢ to 70¢ a ton in the first half of July. And this event was promptly seized upon by other industries as justification for new price increases for their own products. Thus, steel spokesmen have announced that they need a price increase averaging \$5 a ton. And, in turn, manufacturers of consumer durable goods have stated that higher steel prices would make it necessary for them to raise their prices again.

One company put it this way: "An advance in the price of steel will have to be passed on to the consumer, because we simply can't live with it. It's a matter of survival." Auto makers, manufacturers of refrigerators and washing machines, and producers of electrical appliances have generally echoed this sentiment.

But the financial statements of the steel and consumer durable goods industries for the first half of this year simply do not support the contention that they are fighting for survival. On the contrary, midyear financial reports reveal that practically without exception they are making record-breaking profits.

Thus, steel, benefiting from the economies of capacity operations, is making greater profits even than at the height of the war boom. It would appear capable of absorbing a 70¢ a ton rise in coal prices (about one and a half tons of coal are required for the making of one ton of steel).

Nor does there seem to be any justification for raising the prices of consumer durable goods even if the steel corporations do advance their prices. An automobile, for instance, takes 1½ to 2 tons of steel. Does an increase of \$10 in the cost of steel for an automobile warrant another price advance for cars? The answer, considering the very high profit level of the industry, would seem to be no.

The higher prices are run up in the face of inadequate purchasing power, the steeper will be the inevitable drop in production and employment when the general price level cracks, as crack it must. Inflationary price policies of this kind not only are driving the country toward a price debacle, but if unchecked may set the stage for a major depression.

### Prices: canned goods 4

The canning industry has large stocks of unsold goods from last year's pack. They are piled up in warehouses and on dealers' shelves, largely because of consumer resistance to high prices. Unless these surplus stocks are eliminated, they will have to be dumped on the domestic market and the prices of this year's pack will drop substantially. That prospect disturbs the canners, and so they have devised a plan.

To prevent prices from declining, the industry is asking for government subsidies which would enable the surplus stocks to be dumped abroad at bargain prices. Losses taken by the canners in exporting the stocks would be underwritten by the Government. The canners would then be able to maintain high prices here at home as the new pack starts coming to market.

It is an interesting plan. One of its most interesting aspects is its distinct contrast to the canners' previous opposition to consumer subsidies under the price control program. These subsidies held down the prices of major canned goods and other foods. But the canning industry and other food industries attacked them as wasteful and even immoral, contending that prices should be permitted to seek their own level.

The price control program and consumer subsidies were destroyed. Inflation was let loose and the nation's food bill has been increased by some ten billion dollars a year. And now surplus stocks of canned goods are backing up, and prices are seeking lower levels, and the canning industry wants to use government subsidies to hold up prices.

*Continued on next page*

## 5 Trial balloon

Ever since the Administration launched its campaign for lower prices, some sections of business have been dropping hints that the reductions should be tied in with some form of price-fixing arrangements. The argument is made that price cuts should be made on an organized industry-wide basis in order to prevent a deflationary spiral from developing. Trial balloons are even out for a revival of NRA-type price fixing.

One such trial balloon turned up in a questionnaire sent out recently by the Joint Congressional Economic Committee to business, labor and farm leaders, requesting their views on major issues before Congress. This questionnaire was distributed by Dun & Bradstreet and contained the following leading question: Should Congress take up "legislation to permit voluntary agreements, under government sanction, on industry-wide prices for definite periods"?

Consumers will have to be on the alert for attempts to sanction price-fixing arrangements in return for price reductions in the basic industries. Lower prices are necessary to restore purchasing power. But if they are tied to price-fixing arrangements or by-passing of the antitrust laws, consumers will find themselves more than ever at the mercy of controlled production and prices.

Instead of legalizing price-fixing and other monopolistic practices, the Government must investigate and crack down on all methods employed to keep prices at their present excessive levels. And companies with profits of the kind being piled up today do not have to wait for agreements to cut excessive prices.

## 6 The profit take

Last fall CU's economic consultants estimated that corporate profits after taxes in 1946 would reach the record-breaking level of twelve billion dollars. That estimate was supported by the President's Economic Report to Congress, issued in January of this year.

Such estimates, which were criticized by business spokesmen at the time as being far too high, now turn out to have been on the low side. A recent Commerce Department study puts corporate profits after taxes during 1946 at 12.5 billion dollars. By contrast, the wartime peak was 10.3 billions in 1943 and the previous peacetime high was 8.3 billions in 1929.

According to the Commerce Department, profits rose markedly throughout 1946. By the fourth quarter of the year, profits before taxes were about 27 billion dollars on an annual basis and were running more than 16 billions a year after taxes. CU's economic consultants now estimate that profits both before and after taxes during the first half of 1947 will prove to have run at a

higher annual rate than in the fourth quarter of 1946.

Three factors contributed to the unprecedented 1946 profit take. The first was the elimination of the wartime excess profits tax and the reduction of the corporate tax rate from 40% to 38%. The second was the sharp increase in prices, particularly after price control was destroyed in the second half of 1946. The third was the high level of civilian production as the economy shifted rapidly from war goods to civilian goods.

Consumers will be especially interested in the profits of the wholesale and retail trades. Their profits after taxes amounted to 1.4 billion dollars in 1945 and 2.7 billions in 1946, an increase of almost 100%. These figures show that consumer organizations were correct when they contended last year that the abandonment of price control and the principle of cost absorption would lead to the pyramiding price inflation at all levels of production and distribution.

## Body blow 7

With Federal rent control irreparably weakened and the way paved for decontrol, region by region, the assault of rent increases on living standards has begun. Living costs were already the highest on record before Congress destroyed effective rent control. Under the "15%" provision of the law, a family with a monthly rent of \$50 faces an increase of \$7.50 a month, or about \$1.75 a week. With rents taking 25% to 35% of many family budgets, the increases will have to be borne at the expense of lower expenditures for food, clothing and other essentials. If the 15% "voluntary" increase is not defeated — and many tenants have already been pressured to accept it or face eviction — the national rent bill will go up by as much as three billion dollars or more a year.

There is no question that in this law consumers suffered a real body blow. They are left with three things to do. First, they should resist pressure to sign leases calling for the 15% increase. Their best bet on this count is organized action. Tenants cannot legally be evicted for refusing to accede to the 15% gouge, and if they are backed up by powerful tenant organizations they can fight successfully against eviction threats.

Secondly, tenants and their organizations should put the heat on their governors and their legislatures for special sessions to enact state rent control laws before the Federal measure, such as it is, expires next March.

Finally, tenants should start working now for the extension of improved Federal rent control after March 31st. Now that the gross unfairness of the present law has been seen, it is possible that rent control in more workable form can be put back on the statute books. Tenants have everything to gain by organizing and fighting for this minimum three-point program.



## New records

CU's consultant passes judgment  
on some new releases and on the  
Silvertone Record Club as well

A number of CU subscribers have inquired about the Silvertone Record Club, which operates under the sponsorship of Sears, Roebuck & Co. So we have taken time out to see what it has to offer.

The Silvertone Record Club is a subscription scheme very much like the various mail-order book clubs throughout the country. Four 12-inch records are issued each month — two "popular" and two "concert" selections. Subscribers are expected to purchase a minimum of eight discs a year; and, for every four purchased, are permitted to select a bonus record without charge.

The minimum allowable purchase, \$12, thus brings the subscriber ten records in all. A total annual invest-

ment of \$16.98, plus State tax, entitles the subscriber to 15 records (including bonus discs), sent to his home postpaid. An attractive monthly circular is thrown in for good measure.

The records themselves are of a good grade of unbreakable vinylite; on the samples played, reproduction and performance seemed excellent. As for the repertoire, a typical month's selection — that for March, 1947 — included Mozart's *Impressario Overture*, Mendelssohn's *Midsummer Night's Dream Nocturne* played by the Silvertone Symphony Orchestra (made up of N. Y. Philharmonic and NBC Symphony musicians under Erich Leinsdorf); "Lover Come Back to Me" and "I'll Take Romance" sung by Claramae Turner; "Where or When" and "My Heart Stood Still" sung by Gleen Osser with Orchestra and Chorus; and "September Song" and "The Night is Young" sung by Lanny Ross.

Of course, there are people who do not care to add pre-selected repertoire to a record library. But there are also many who do. For them we would say, on the basis of the sample records heard, that the Silvertone Record Club represents an excellent value. Vinylite records of comparable quality are selling for not less than \$2; getting 15 such discs for \$16.98, therefore, is bound to look pretty good. And they sound good, too.

**BACH:** Brandenburg Concertos — No. 2 in F Major; No. 5 in D Major. Boston Symphony Orchestra under Serge Koussevitzky, with Lukas Foss (piano), Roger Voisin (trumpet), Georges Laurent (flute) and Richard Burgin (violin). *Victor* Album M-1118 (four twelve-inch records), \$4.85.

Elegance and rhythmic vitality mark this performance of the two most brilliant of Bach's Brandenburg Concertos. The F Major pits violin, flute, oboe, and trumpet against the larger body of strings; while the D Major features harpsichord (piano, in this performance), flute and violin. The difficult trumpet part of the F Major is carried off with the utmost ease. Similarly, the keyboard role in the D Major is a full-scale virtuoso proposition, which young Lukas Foss manages with real style and spirit. The recording is thoroughly good.

**BARTOK:** Concerto for Violin and Orchestra. Yehudi Menuhin with the Dallas Symphony Orchestra under Antal Dorati. *Victor* Album M-1120 (five twelve-inch records), \$5.85.

This piece by the late Hungarian master is more brilliant and complex than the beautiful Third Piano Concerto reviewed last month. The music is highly emotional in character, extremely brilliant in scoring, and spiced at strategic moments with pungent dissonance. Menuhin and the Dallas Symphony musicians are in first-rate form, and have the benefit of generally satisfactory reproduction.

**BLITZSTEIN:** Symphony — The Airborne. New York City Symphony Orchestra under Leonard Bernstein with Male Chorus of the RCA Victor Choral, Robert Shaw (narrator), Charles Holland (tenor) and Walter Scheff (baritone). *Victor* Album M-1117 (seven twelve-inch records), \$8.

This massive symphonic mural has been very successful in its New York concert performances. Its basic musical values may be open to some question, but as a dramatic piece depicting man's struggle to attain power of flight, and as a vivid portrayal of the potentialities of that power, the effectiveness of *The Airborne* is undeniable. Mr. Blitzstein's technique might be likened to that used by Norman Corwin, with the role of music and speech reversed. The recorded performance under Leonard Bernstein is tops.

**COPLAND:** Danzon Cubano. Aaron Copland and Leo Smit (duo-pianists). Concert Hall Society Album AL (twelve-inch vinylite record), \$2.

Among the most popular of American symphonic works is Aaron Copland's colorful evocation of the Mexico City dance hall, "El Salon Mexico." Now, in this humorous two-piano piece, written as a birthday gift for the League of Composers, Copland does somewhat the same thing for Cuba. Recording and performance are A-1.

**MOZART:** Adagio and Rondo for Glass Har-

monica (K. 617), arranged by E. Power Biggs. E. Power Biggs (celesta), Phillip Kaplan (flute), Louis Speyer (oboe), Emil Korrisand (viola), and Josef Zimble (cello). *Victor* 11-9570, \$1.

In its original form, this bit of Mozartiana was written for a blind Viennese virtuoso who played an instrument invented by Benjamin Franklin — the glass harmonica, which consisted of graduated glass bowls on a pedal-powered revolving spindle. Musical sounds were produced by a moistened finger or thumb. For practical reasons, a celesta, the nearest equivalent to a glass harmonica, is used here. The resulting sounds are charming, and the recording is excellent.

**PURCELL:** Eight Suites for Harpsichord. Sylvia Marlow (harpsichord). *Gramophone Shop* Album GSC-2 (five twelve-inch vinylite records), \$11.50.

The Gramophone Shop of New York City has made a notable contribution with this album comprising the complete set of harpsichord suites by England's 17th century master, Henry Purcell. Miss Marlow plays with verve, and has the benefit of some of the most realistic harpsichord recording we have ever heard. The vinylite playing surfaces, we might add, are a godsend.

**SHOSTAKOVICH:** Symphony No. 9, Op. 70. N. Y. Philharmonic-Symphony Orchestra under Efrem Kurtz. *Columbia* Album M-688

(consists of four twelve-inch records), \$5.

Russia's Dmitri Shostakovich surprised his musical public by following his monumental wartime Symphonies No. 7 and No. 8, not with a victory paean, but with what amounts to a symphonic divertissement in five brief movements. Only in the second and fourth movements does the composer give way to the intense expression of remembered emotion. The odd-numbered episodes, particularly the first, are full of musical pranks. Efrem Kurtz and the Philharmonic musicians put the music through its paces in smart fashion, with brilliant support from the recording engineers.

**STRAVINSKY:** Symphony in Three Movements. N. Y. Philharmonic-Symphony Orchestra under Igor Stravinsky. *Columbia* Album M-680 (three twelve-inch records), \$4.

This symphony, composed for the N. Y. Philharmonic's anniversary season, is a tough nut even for the experienced concertgoer. There are magnificent pages in the first and last movements, pages that hark back to *Le Sacre du Printemps* and the *Symphony of Psalms*, but the problem of musical and psychological continuity is a

knotty one, indeed, in this piece. The recording is good; the performance under the composer's baton, superb.

**CHAIKOVSKY:** Piano Concerto No. 2 in G Major, Op. 44. Shura Cherkassky with the Santa Monica Symphony Orchestra under Jacques Rachmilovich. *Concert Hall Society* Album AM (four twelve-inch vinylite records), \$9.

The release of Tchaikovsky's Second Piano Concerto on records comes as a welcome relief from the over-played B-flat Minor. This work has not the high points of the First Concerto, but it is a better-constructed work, with an abundance of Tchaikowskian melody and brilliant orchestration, as well as plenty of fireworks for the pianist. We are particularly fond of the brilliant rondo finale. The performance here is a fiery one, but room resonance seemed practically non-existent in the recording, and the bass register seemed badly thinned out, too.

**THOMSON:** The Plow That Broke the Plains—Suite. Hollywood Bowl Symphony Orchestra under Leopold Stokowski. *Victor* Album M-1116 (two twelve-inch records), \$2.85.

For the Pare Lorentz film-saga of the Dust Bowl, Virgil Thomson has created a score that ranks among the best of its kind. Side-by-side with episodes that evoke ancient hymn tunes and familiar cowboy airs, we have the bitterly ironical piece titled "Blues—Speculation." Stokowski is in his best form throughout the four sides. The reproduction is outstandingly fine.

**WIENIAWSKI:** Violin Concerto No. 2 in D Minor. Isaac Stern with the N. Y. Philharmonic-Symphony Orchestra under Efrem Kurtz. *Columbia* Album M-656 (three twelve-inch records), \$4.

This romantic work by the 19th century Polish violin virtuoso, Henri Wieniawski, gets a virtually definitive recorded performance here, even bearing in mind the fine Heifetz *Victor* recording of some years ago. Stern, in our opinion, combines, at his best, the technique of Heifetz with the vitality of Szigeti; furthermore, Stern plays the Concerto without the large cut in the introduction that marred the Heifetz album. Efrem Kurtz and the N. Y. Philharmonic supply first-rate orchestral support, while the Columbia engineers supply excellent recording.

## Cumulative Index

—Each issue contains this index of principal subjects covered since publication of the 1947 Buying Guide issue. By supplementing the Buying Guide index with this one, readers can keep abreast of changes re-

sulting from new tests. Page numbers run consecutively from the January issue, Jan. 1-28, Feb. 29-56, Mar. 57-84, Apr. 85-132, May 133-180, June 181-228, July 229-276, Aug. 277-324.

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To help *Reports* readers get "Best Buys" for their movie money, CU presents ratings made up with the aid of some 2000 subscribers, most of them group leaders, and members of CU's National Advisory Committee. Each participant, as soon as he sees a picture, notifies CU by special card whether he considers it to be "Excellent (E)," "Good (G),"

## CU's movie poll

"Fair (F)," or "Poor (P)." The tabulation shows the percentage of replies in each category (largest vote is in boldface). How several movie critics (Cr) felt is also indicated, to the extent that various opinions can be summarized. (CU neither selects the picture nor makes recommendations, but simply reports the results of its poll.)

Picture and principal stars	Percentages					Picture and principal stars	Percentages					Picture and principal stars	Percentages				
	E	G	F	P	Cr		E	G	F	P	Cr		E	G	F	P	Cr
BEGINNING OR THE END Audrey Totter, Robert Walker	31	35	28	6	G	GREAT EXPECTATIONS John Mills, Valerie Hobson	80	16	4	0	E	NORA PRENTISS Ann Sheridan, Kent Smith	26	35	26	13	G
BEST YEARS OF OUR LIVES Frederic March, Myrna Loy	81	17	2	0	E	HIGH BARBARIE June Allyson, Van Johnson	25	25	42	8	F	PURSUED Robert Mitchum, Teresa Wright	35	45	0	0	F
BOOMERANG! Dana Andrews, Jane Wyatt	75	22	3	0	E	HOMESTRETCH Maureen O'Hara, Cornel Wilde	15	46	39	0	FG	RAMROD Veronica Lake, Joel McCrea	0	30	50	20	G
BRASHER DOUBLOON George Montgomery, Nancy Guild	10	20	30	40	F	HONEYMOON Shirley Temple, Guy Madison	0	30	50	20	F	RAZOR'S EDGE Tyrone Power, Gene Tierney	34	32	22	10	G
BRIEF ENCOUNTER Celia Johnson, Trevor Howard	80	18	2	0	E	IMPERFECT LADY Ray Milland, Teresa Wright	0	50	40	10	FG	RED HOUSE Edward G. Robinson, Judith Anderson	30	57	10	3	G
CALCUTTA Alan Ladd, Gail Russell	14	29	43	14	F	IT HAPPENED IN BROOKLYN Frank Sinatra, Kathryn Grayson	14	37	46	3	F	SINBAD THE SAILOR Maureen O'Hara, Douglas Fairbanks, Jr.	10	54	34	2	G
CALIFORNIA Barbara Stanwyck, Ray Milland	8	57	30	5	G	IT HAPPENED ON FIFTH AVENUE Ann Harding, Don DeFore	39	47	7	7	F	SMASH-UP Susan Hayward, Eddie Albert	20	40	20	20	G
CARNIVAL IN COSTA RICA Dick Haymes, Vera-Ellen	9	33	42	16	F	IVAN THE TERRIBLE Cherkassov, Tselikovskaya	38	12	25	25	G	STAIRWAY TO HEAVEN David Niven, Kim Hunter	71	23	3	3	G
THE CHASE Robert Cummings, Michele Morgan	4	45	38	13	P	LADY IN THE LAKE Robert Montgomery, Audrey Totter	18	61	17	4	G	STALLION ROAD Ronald Reagan, Alexis Smith	8	68	16	8	FG
DEVIL THUMBS A RIDE Lawrence Tierney, Nan Leslie	0	19	50	31	F	LATE GEORGE APLEY Ronald Colman, Peggy Cummins	45	39	16	0	G	SUDDENLY IT'S SPRING Paulette Goddard, Fred MacMurray	10	47	40	3	FG
DUEL IN THE SUN Gregory Peck, Jennifer Jones	27	34	30	9	FG	THE LOCKET Laraine Day, Robert Mitchum	14	59	18	0	F	TRAIL STREET Randolph Scott, Anne Jeffreys	0	61	10	29	F
EASY COME, EASY GO Barry Fitzgerald, Diana Lynn	0	46	36	18	F	MACOMBER AFFAIR Gregory Peck, Joan Bennett	11	63	15	11	G	TWO MRS. CARROLLS Humphrey Bogart, Barbara Stanwyck	8	32	46	14	FG
EGG AND I Fred MacMurray, Claudette Colbert	23	58	13	6	FG	MIRACLE ON 34TH STREET Maureen O'Hara, John Payne	68	20	6	6	GE	THE UNFAITHFUL Ann Sheridan, Lew Ayres	25	50	25	0	F
FABULOUS DORSEYS Tommy & Jimmy Dorsey, Janet Blair	0	17	25	58	F	MR. DISTRICT ATTORNEY Marguerite Chapman, Dennis O'Keefe	0	40	40	20	F	UNDERCOVER MAISIE Ann Sothern, Barry Nelson	0	18	82	0	F
FARMER'S DAUGHTER Loretta Young, Joseph Cotten	48	46	6	0	G	MY FAVORITE BRUNETTE Dorothy Lamour, Bob Hope	18	59	23	0	G	WICKED LADY James Mason, Margaret Lockwood	12	22	35	31	F
												THE YEARLING Gregory Peck, Jane Wyman	71	24	5	0	GE

### The returns aren't in

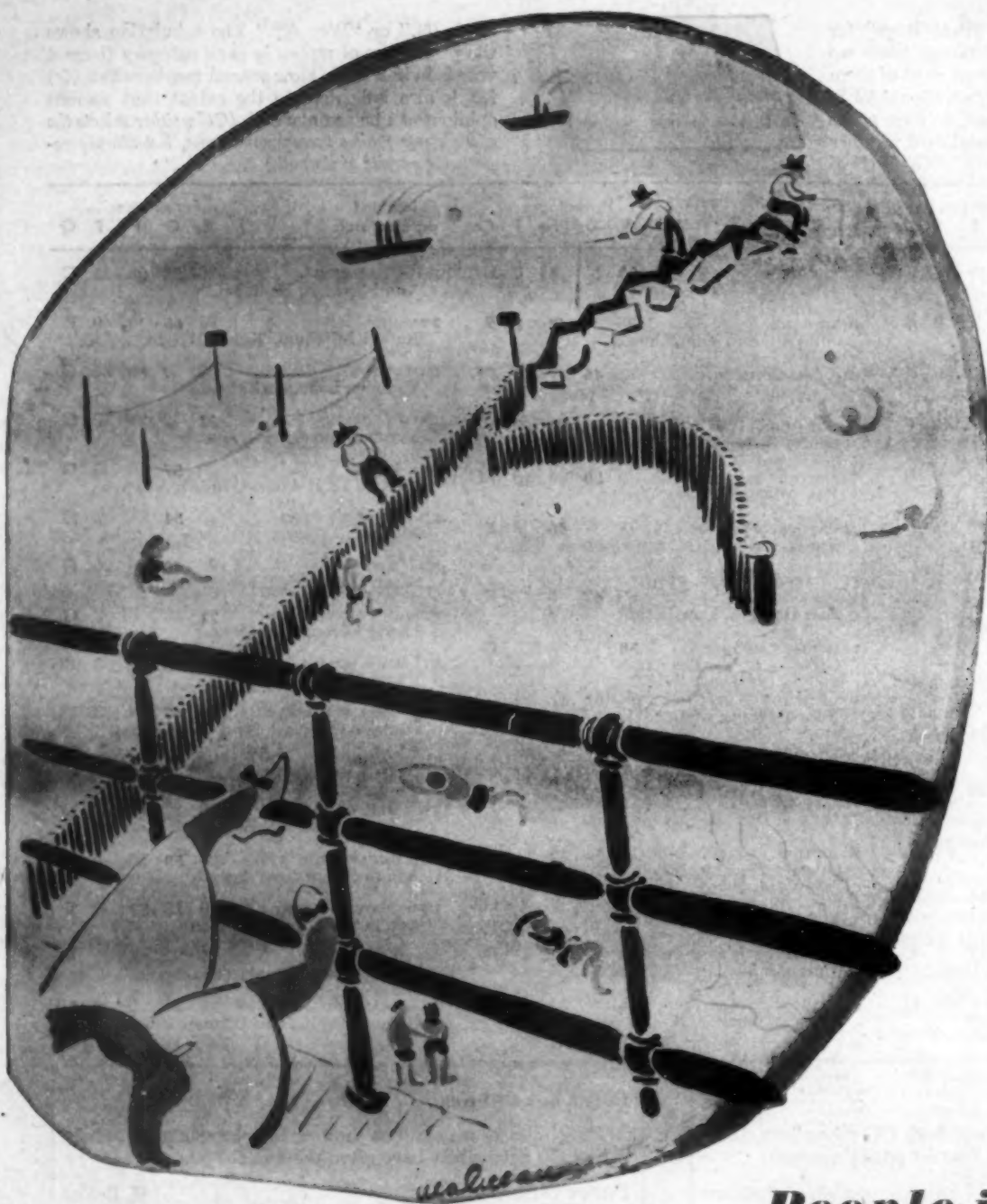
When more returns are received from CU subscribers, these movies will be rated; until then, here are critics' scorings:

Picture & Stars	Critics' Opinions
THE ADVENTURES — Deborah Kerr, Trevor Howard . . . . .	E
BRUTE FORCE — Burt Lancaster, Hume Cronyn . . . . .	FG
COPACABANA — Groucho Marx, Carmen Miranda . . . . .	F
CHEYENNE — Dennis Morgan, Jane Wyman . . . . .	FG
CRY WOLF — Barbara Stanwyck, Errol Flynn . . . . .	F
DEAR RUTH — William Holden, Joan Caulfield . . . . .	GE
FIESTA — Esther Williams, John Carroll . . . . .	G
GHOST & MRS. MUIR — Gene Tierney, Rex Harrison . . . . .	G
THE GUILTY — Bonita Granville, Don Castle . . . . .	F
GUILT OF JANET AMES — Melvyn Douglas, Rosalind Russell . . . . .	G
THE HUCKSTERS — Clark Gable, Deborah Kerr . . . . .	G
IVY — Joan Fontaine, Patric Knowles . . . . .	G
MOSS ROSE — Peggy Cummins, Victor Mature . . . . .	FG
ODD MAN OUT — James Mason . . . . .	GE
PERILS OF PAULINE — Betty Hutton, Billy De Wolfe . . . . .	E
POSSESSED — Joan Crawford, Van Heflin . . . . .	FG
REPEAT PERFORMANCE — Joan Leslie, Louis Hayward . . . . .	G
THEY WON'T BELIEVE ME — Robert Young, Susan Hayward . . . . .	G
THIS HAPPY BREED — Celia Johnson, John Mills . . . . .	E
TROUBLE WITH WOMEN — Ray Milland, Teresa Wright . . . . .	F
THE WEB — Ella Raines, Edmond O'Brien . . . . .	GE

### Older but still active

These releases may still be showing in your community; here is how CU subscribers have rated them in the past:

Picture & Stars	% Rating
HENRY V — Laurence Olivier . . . . .	97 E
HUMORESQUE — Joan Crawford, John Garfield . . . . .	36 E
IT'S A WONDERFUL LIFE — James Stewart, Donna Reed . . . . .	70 E
MAGNIFICENT DOLL — Ginger Rogers, Burgess Meredith . . . . .	42 E
MARGIE — Jeanne Crain, Alan Young . . . . .	55 G
MY DARLING CLEMENTINE — Linda Darnell, Victor Mature . . . . .	58 G
NOTORIOUS — Ingrid Bergman, Cary Grant . . . . .	50 G
NOTORIOUS GENTLEMAN — Rex Harrison, Lilli Palmer . . . . .	42 G
OPEN CITY — Aldo Fabrizi, Anna Magnani . . . . .	76 E
PERFECT MARRIAGE — David Niven, Loretta Young . . . . .	46 F
SECRET HEART — Claudette Colbert, Walter Pidgeon . . . . .	52 G
SHOCKING MISS PILGRIM — Betty Grable, Dick Haymes . . . . .	57 F
THE SHOW-OFF — Red Skelton, Marilyn Maxwell . . . . .	40 F
SONG OF THE SOUTH — Cartoon-Live Action . . . . .	46 E
STRANGE WOMAN — Hedy Lamarr, George Sanders . . . . .	60 G
SWELL GUY — Sonny Tufts, Ann Blyth . . . . .	52 G
13 RUE MADELEINE — James Cagney, Annabella . . . . .	50 G
TILL THE CLOUDS ROLL BY — Judy Garland, Robert Walker . . . . .	51 G
WELLDIGGER'S DAUGHTER — Raimu, Fernandel . . . . .	70 E



## ***People in groups***

It's summertime and the living is easy (or, at least, so the song says) — and here and there about the countryside, groups of people are swimming together and fishing together in an easy sort of way. Groups of people can learn how to be smart consumers together in an easy way, too. It takes only five to make a CU group. If you get four or more of your friends to subscribe to *Consumer Reports* with you, your subscription (or renewal) and theirs will cost only \$3.50 instead of the regular \$5, and this includes the big annual *Buying Guide* issue in December. Get your friends together, send in your names and addresses — now.